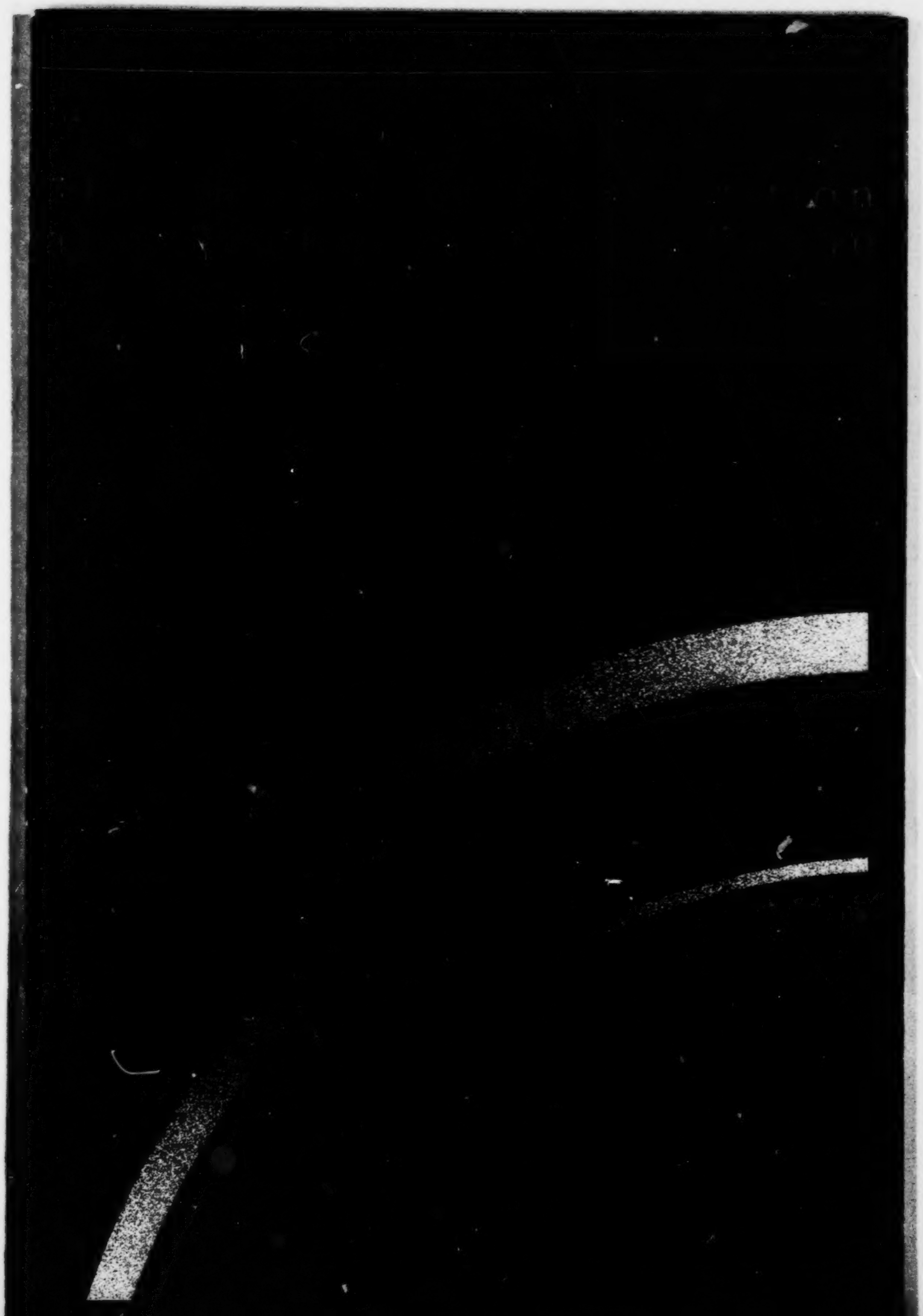

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Telecommunications Policy and Regulation: The Impact of Competition and Technological Change

Telecommunications Policy and Regulation: The Impact of Competition and Technological Change

edited by

W. T. Stanbury

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Glossary of Acronyms

ACTS	Association of Competitive Telecommunications Suppliers
AT&T	American Telephone & Telegraph
BCTel	British Columbia Telephone Co.
CAMPUT	Canadian Association of Members of Public Utilities Tribunals
CAC	Consumers' Association of Canada
CO	Central Office
CFCW	Canadian Federation of Communications Workers of Canada
CNCP	Canadian National/Canadian Pacific Telecommunications
CPE	Customer Premises Equipment
CRTC	Canadian Radio-Television and Telecommunications Commission
DDD	Direct Distance Dialing
DOC	Department of Communications (Federal)
EAS	Extended Area Service
FCC	Federal Communications Commission (US)
FX	Foreign Exchange
ISDN	Integrated Services Digital Network

IW	Inside Wiring
IX	Inter-Exchange (Hearings) (see CRTC/Telecom Decision 85-19)
LAN	Local Area Network
LMS	Local Measured Service Telecom Decision 85-19
MCI	Microwave Communications Incorporated (a supplier of long distance toll service in competition with AT&T and GTE Sprint – now merged with SBS)
MTS	Message Toll Service
MTT	Maritime Telegraph & Telephone
NAPO	National Anti-Poverty Organization
NBTel	New Brunswick Telephone Co.
PBX	Private Branch Exchange
POTS	Plain Old Telephone Service
PSN	Public Switched Network
PTT	Post, Telegraph and Telephone Department of European Governments
RSP	Revenue Settlement Plan
SAL	Special Access Lines
SBS	Satellite Business Systems (now merged with MCI)
GTE Sprint	General Telephone & Electronics (a supplier of long distance toll services in competition with MCI and AT&T)
TCTS	Trans Canada Telephone System (now Telecom Canada)
TFP	Total Factor Productivity
TWU	Telecommunication Workers' Union
WATS	Wide-Area Telephone Service

Foreword

The meeting for which the papers in this volume were originally prepared was the second organized by this Institute with the support of Telecom Canada. The proceedings of the first meeting were published by the Institute in 1982 as *Telecommunications Regulation and the Constitution*.

The rationale for the research leading up to the present papers was originally cast in terms of the need for telecommunications regulation to respond to rapid and radical technological change, and in particular to explore possible appeals to competitive market forces as a substitute for traditional direct regulation. The problem of maintaining an institutional environment in which the benefits offered by technological progress could be reaped through rapid adaptation, not dissipated in organizational inertia, was seen as central.

The three main papers presented here attempt to identify the major issues presently confronting telecommunications regulators, analyze the implications for the various stakeholders involved, and identify possible policy options. Two collections of shorter commentaries then consider some of the issues involved in moving from policy options to implementation, setting out the argument from the industry perspective and the government perspective, respectively. An American perspective is offered by Richard Wiley's summary of lessons from the U.S. experience.

To bridge the gap from the late-1984 setting of the conference to the present, this volume closes with Bill Stanbury's own personal – and provocative – commentary on the August 1985 decision of the Canadian Radio-Television and Telecommunications Commission (decision 85-19) dealing with that of Bell Canada and BC Tel. Stanbury's commentary thus picks up the themes from the 1984 meeting and casts them forward for a basis for examining the promised but still yet-to-come review of this landmark CRTC decision.

The Institute is grateful to Telecom Canada for its active support of a program of basic research in telecommunications policy, and to Professor Stanbury for taking on not only the organization of the 1984 conference but the editing of the conference proceedings. The result should provide important background to the current debate on the challenge of technological change and increasingly competitive markets to telecommunications regulation, and the possibilities for reconciling the goal of greater efficiency in the provision of services with some appropriate assurance of access to them.

Rod Dobell
President

October 1986

Avant-propos

La rencontre, qui se trouve à l'origine des articles de ce volume, a été la seconde du genre organisée par l'Institut, avec le soutien de Télécom Canada. Les débats de la première rencontre ont déjà fait l'objet d'une publication en 1982, par les soins de l'Institut, sous le titre: *La Réglementation des télécommunications et la constitution*.

La raison d'être initiale de la recherche partait de la nécessité d'arriver à une réglementation des télécommunications qui permette de répondre aux changements rapides et radicaux de la technologie et d'explorer, en particulier, la possibilité d'un appel aux forces concurrentielles du marché, comme substitut à la traditionelle réglementation directe. La nécessité du maintien d'un contexte institutionnel où les avantages offerts par les progrès technologiques pourraient rapidement être intégrés, et non pas dissipés par l'inertie administrative, paraissait l'objectif principal à atteindre.

Les trois principales études présentées ici tentent de cerner les problèmes qui vont se poser aux responsables des télécommunications, d'examiner les implications que cela entraîne et d'identifier les types d'action possibles. Ensuite, deux séries d'analyses plus brèves considèrent certaines des questions soulevées par le passage de la théorie à la pratique, en préparant l'argumentation soit du point de vue de l'industrie, soit de celui de l'Administration. La synthèse par Richard Wiley des leçons tirées de l'expérience des Etats-Unis nous fournit également une perspective américaine sur la question.

Afin de tenir compte des changements survenus depuis la date de cette rencontre (fin 1984), ce volume se termine avec les commentaires personnels—et stimulants—de Bill Stanbury sur la décision 85-19, d'août 1985, de la Commission de la radio-télévision et des télécommunications canadiennes, relativement à Bell Canada et à B.C. Tel. Dans ses commentaires, Stanbury reprend les thèmes de la rencontre de 1984 et s'en sert comme critères pour l'examen de la révision promise, mais toujours à venir, de cette décision qui fait date de la CRTC.

L'Institut est reconnaissant envers Télécom de son appui efficace au programme de recherche fondamentale en politique des télécommunications. Il l'est également à l'égard du professeur Stanbury qui, non seulement a organisé la rencontre de 1984, mais aussi a bien voulu se charger de la révision des textes et des débats. Le présent ouvrage devrait servir de référence importante dans le débat actuel sur le défi que présentent, à la réglementation des télécommunications, les progrès technologiques et des marchés de plus en plus concurrentiels. Il devrait, en outre, offrir des solutions permettant de concilier une plus grande efficacité dans la prestation des services avec l'assurance que ces derniers restent accessibles.

Rod Dobell
Président

Octobre 1986

Economic Factors in Telecommunications Policy and Regulation

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Introduction

In dealing with an issue as broad and complex as the economics of telecommunications regulation, one must carefully circumscribe the research questions to be addressed to avoid being overwhelmed by the massive (and rapidly growing) body of information and opinion bearing on this dynamic subject. This paper attempts to contribute to the policy debate surrounding the "appropriate" scope for telecommunications regulation in Canada in two ways:

- by describing and evaluating the critical economic relationships influencing the welfare implications of alternative policy approaches, and
- by suggesting a broad policy approach toward defining and managing the boundaries between the competitive and regulated sectors of the industry.

We note explicitly at the outset that our goal is not to break new theoretical ground. Nor is it to identify new empirical relationships bearing on the deregulation debate. Rather, it is to integrate a substantial and diffuse literature into a coherent analysis of broad potential policy approaches towards this critical sector of the economy. This disclaimer is not offered as an apology. Much of the background research relevant to evaluating policy alternatives is located in sources that are not readily accessible to individuals outside the industry. Furthermore, much of the relevant research is fragmentary and technical in nature, which makes it difficult for interested individuals, both inside and outside the industry, to gain an appreciation of the overall policy implications of the findings and conclusions presented. In our view, these shortcomings in the literature inhibit a broad and fully informed policy debate on the telecommunications' deregulation issue and offer a strong motivation for this study.

At the outset, we would argue that two broad issues comprise the core of the policy debate on telecommunications regulation in Canada. The first relates to workable definitions of the "monopoly" and "competitive" sectors of the industry. The second relates to the degree of control that the regulator should exercise over entry and pricing in the industry.[1] The outcome of public policy decisions in these issue-areas (in principle) should contribute to lower prices for consumers, and better service quality, while preserving universal access to basic telephone service.

Underlying the resolution of these two broad issues are a number of specific economic relationships. One concerns the extent of economies of scale, scope and technological change in the industry. These economies are relevant to policies conditioning entry inasmuch as they constrain the number of firms that can efficiently provide given levels of output over time. For example, it has been established that, in the presence of significant economies of scale and scope, policies that promote entry into the industry may contribute to higher costs.[2] Therefore, the nature of the industry's cost function is seen to have an important bearing upon whether allowing open entry into various segments of the telecommunications industry will raise or lower costs. It also has relevance for the degree of rivalry (especially with respect to price) that might be reasonably expected in an environment where price-setting was unregulated.

A second economic relationship underlying a resolution of the two broad policy issues cited above is the association between local service costs and revenues, and – to a less important extent – cost-revenue relationships for specific categories of subscribers within the local and toll sectors. More specifically, it has been widely acknowledged that where local service is subsidized by other telecommunications products and services, opening up the latter segments to competitive entry will not necessarily promote increased efficiency. This is because entrants may be attracted to segments of the industry where existing common carriers enjoy a cost advantage, but where the carriers are prevented from fully passing those cost advantages on to consumers by the requirement to subsidize local services. In effect, by promoting ease-of-entry in other segments of the industry, subsidies to local service and to other categories of user services (to the extent they exist) systematically bias entry-based tests of the efficiency of extant carriers.[3]

Concern about the adverse allocative effects of subsidies to local service raises a number of specific empirical questions. The most obvious is the magnitude of any such subsidies. Are they so substantial in relation to the value of toll services as to threaten the ability of common carriers to compete against new entrants in the provision of message toll services? Presuming that significant subsidies exist, another relevant question concerns the distribution of these subsidies. For example, if the relevant subsidies are concentrated among a relatively small group of consumers, policy-related arguments for cross-subsidies through the telephone tariff system could be readily dismissed. On the other hand, if the incidence of the subsidy is broad and if the subsidy can be argued to serve "non-allocative" objectives, the potential policy tradeoffs between equity and efficiency can be quite acute.

A third (and related) economic relationship stressed in the literature is the potential for (and consequences of) regulated carriers subsidizing competitive services out of net revenues earned on monopoly services. The potential for such cross-subsidization introduces a constant threat of predation to would be competitors, especially in the provision of enhanced services such as data base management, electronic mail, and other information transmission and processing activities.[4]

The three critical economic relationships identified above, i.e., the nature of the industry's cost function, the relationship between local service costs and revenues, and the enhanced potential for predation when competitive and monopoly services are provided by the same firm, are central to the regulation debate in both Canada and the United States. However, the debate in Canada is complicated by several "non-economic" considerations. A major one is the continuing preoccupation of policy-makers with Canadian sovereignty. This preoccupation was manifested in the Restrictive Trade Practices Commission's inquiry into the vertical ownership link between Bell Canada and Northern Telecom. The Commission evidenced a clear concern about the impact of a vertical divestiture on the competitiveness of Canadian-owned suppliers in both the Canadian and foreign markets.[5]

This sovereignty concern was manifested even more starkly by the mandate given the Clyne Committee to produce specific recommendations on a strategy to restructure the Canadian telecommunications system.[6] The objectives of the strategy included improving the international competitiveness of Canada's software and hardware industries and safeguarding of Canada's sovereignty.

Another especially "Canadian" complication is the strong regional flavour of the problem.[7] One aspect of this regional focus is the balkanized regulatory structure of the industry, which includes the lack of a single authority over Telecom Canada. The balkanization was led to, among other things, regional differences in the boundaries drawn between monopoly and competitive segments. It also promises to lead to obstacles and delays in the interconnection of telephone networks, including cellular interconnection.[8] A second is the concern that substantitive moves to introduce competition in Message Toll Services will threaten the viability of smaller, regional telephone companies by reducing their toll revenues from Telecom Canada settlements. Concern about the economic survival of rural communities in the less densely populated provinces has also been linked to restructured telephone rates attending increased competition in long-haul segments of the industry.[9]

The broad mandate of Canadian policy researchers would therefore appear to be the identification of structural changes (particularly with respect to conditions of entry) and behavioural changes (especially with regard to regulating tariffs and other dimensions of economic behaviour) that promise to promote the long run efficiency of the telecommunications industry. Any such changes recommended must be consistent with at least three broad public policy objectives: universal access to telephone service, substantial Canadian ownership in all segments (especially the carrier stage) of the industry, and respect (within limits) for legitimate regional development objectives.

Overview of the Current Structure of the Industry

A prerequisite to the identification and evaluation of strategic alternatives is a thorough consideration of the environment surrounding the relevant set of activities. The three economic relationships identified in the preceding section will serve as a focus for our assessment of the economic "environment" surrounding Canada's telecommunications industry. As background to this detailed and extended discussion, it would be useful to review the current economic structure of the carrier segment of the industry.

The Canadian telecommunications carrier industry is characterized by regional telephone company monopolies in public, switched-network telephone services[10], a national (CNCP) monopoly in public message telegraph service, and a (Telco/CNCP) duopoly in most other services, including private line voice, data communications and video transmission services.

All telecommunications carriers are subject to some form of regulation. The CRTC regulates Bell Canada, BC Tel, CNCP Telecommunications and Telesat. More than two-thirds of the assets and revenues of the carrier industry are ascribable to CRTC-regulated carriers. Other major Telcos are regulated by provincial regulatory bodies, including for Sask Tel, which (since 1983) has been regulated by a Public Utility Review Commission. The international carrier, Teleglobe, is not directly regulated.[11]

Regulatory restrictions on the number of firms legally entitled to compete in different segments of the carrier segment of the industry are significantly more rigid in Canada than in the United States.[12] For example, in Canada, private line voice, data communications and message record services are provided on a duopoly basis by Telecom Canada and CNCP. In contrast, by April 1981, there were 13 companies offering one or another form of private line voice service in the United States and 27 companies offering a dial-up (public network) voice service. Some of the latter companies also offered a private line service. There were 22 companies offering either dial-up or private line data services.[13] Including resellers, there were an estimated 300 companies offering some form of long distance telephone service in 1983. Other Common Carriers (OCCs) have made substantial inroads in the total metered and private line toll market. Specifically, non-Bell carriers accounted for around 20 percent of that market in 1980.[14] By 1984, it is estimated that OCCs serve 46 percent of businesses that spend over $50 per month on long distance and 10 percent of residences that spend more than $25 per month on long distance.[15]

The recent AT&T consent decree substantially altered the structure of the local segment of the industry in the United States. Under the breakup agreement, the 22 operating Bell companies were merged into 7 independent regional companies. An important feature of this reorganization is that the independent local telcos must offer interconnection privileges to all dial-up or private line services on a non-discriminatory basis.[16] By contrast, only CNCP (at time of writing) has interconnection privileges to Bell Canada's and BC Tel's local exchange facilities. The extent and nature of this allowable interconnection remains a contested issue. In particular, there is contention about whether CNCP customers are allowed to connect broadband service to equipment under CRTC decisions made in 1979 and 1982. These latter two decisions do not necessarily confer interconnection rights on other potential competitors.[17]

With the implementation of the consent decree, structural conditions in the local segment of the industry differ quite markedly between the United States and Canada. In the US, besides the approximately 1,500 independent telcos providing service, mainly to small towns, there are 7 major independently-owned regional companies of comparable size.[18] In Canada, there are almost 200 companies offering local exchange service, of which the great majority are relatively small.[19] While available statistics do not allow precise estimation, it would seem that Bell Canada and BC Tel accounted for approximately two-thirds of all local telephone calls in 1981.

The extent to which toll and local service is provided by individual telecommunications carriers cannot be precisely determined from publicly available information. However, it can be surmised that Bell Canada accounted for around 60 percent of local service revenue and somewhat over 50 percent of toll service revenue in 1981. The combined revenues of Bell Canada and BC Tel equalled about 70 percent of all local and toll service revenues of telephone companies reported by Statistics Canada in 1981.[20] It might be noted that the telephone service revenues of CNCP represent a virtually insignificant percentage (i.e., less than one percent) of total telephone industry revenues reported in 1980.

De jure "open" competition in the terminal equipment market exists in the US and in Bell Canada and BC Tel-served territories. In most parts of Alberta, except Edmonton (which is subject to a different regulatory regime), a customer may attach terminals to the network virtually without restriction. In Manitoba and Saskatchewan, terminal attachment is permitted for residential subscribers, but denied (in general) for business subscribers. In Saskatchewan there are certain prohibitions on even advertising customer-owned terminal equipment. In Prince Edward Island, the courts have ordered liberalization of terminal attachment, overruling an earlier denial by the regulatory board. Attachment of terminal equipment to the Telecom Canada network was recently approved in Nova Scotia, although it is presently prohibited in the remaining Maritime provinces.

Critics of vertical integration argue, however, that telcos favour their own equipment subsidiaries as a practical matter. While the divestment of the Bell System's local operating companies will substantially mitigate this concern in the United States, it remains a concern in Canada, since both Bell Canada and BC Tel own major equipment suppliers. And, indeed, independent interconnect

companies have voiced concern about the behaviour of the vertically integrated telcos, who, in the words of Andrew Toller, director of research at Northern Business Information Ltd., "... have begun to lash out with a vengeance at the successful encroachment on their territories".[21]

Market share estimates (on the surface) support the concern of the industry's critics. Specifically, the Business Terminal Equipment division of BC Tel has 88 percent of its interconnect PBX (private branch exchange) market, while the Business Communications division of Alberta Government Telephones enjoys 85 percent of the interconnect PBX market in Alberta. Although the telephone companies are less dominant in Ontario and Quebec, interconnect shipments by the independents slipped to 40 percent of PBXs sold in Bell Canada territory from 52 percent in 1982.[22]

Differences in entry conditions for the provision of satellite transmission services are more explicit. Specifically, satellite communications in Canada are provided by Telesat Canada, which is owned in equal shares by the federal government and Telecom Canada members. A member of Telecom Canada, Telesat was, until recently, a "carriers' carrier". Under the Telecom Canada-Telesat agreement, Telesat could sell two-way communication services only to Telecom Canada members or CNCP Telecommunications. Telesat's growth in two-way services was limited by a Telecom Canada policy to assign Telesat one-third of the "eligible growth circuits" which Telecom Canada projects it needs to serve the demand for its services expected to be generated under its message toll/WATS price structure.[23]

It should be noted that Telecom Canada's traffic allocation policy has been identified by the CRTC as an area of concern. Federal regulatory pressure may be increasingly applied to encourage Telesat to use its services more aggressively in the national interest and to provide more equitable channel leasing arrangements for a wider range of users.

In sharp distinction, the "open skies" domestic satellite decision has opened up this transmission medium to competitive entry in the US. Most voice, data, record and video services are now offered by both satellite and terrestrial transmission. In 1982 there were four domestic satellite carriers using 17 satellites and 300 transponders. Of these transponders, 96 (or 32 percent) were owned by AT&T. By mid-1984, there were 8 FCC approved domestic satellite carriers with 26 satellites and 594 transponders. AT&T's share of transponders had decreased to 16 percent of the total. For 1987, the list of currently approved carriers number 10. And of the planned 38 satellites and 918 transponders for that year, AT&T will operate only about 10 percent of the capacity.[24] Moreover, specialized and satellite carriers in the United States lease facilities to other than approved carriers.

Federal microwave licensing policy in Canada is also distinguishable from US policy, in that Canadian applicants must demonstrate some public interest and need to be served and that existing facilities can't satisfy this interest and need. This approach obviously gives preference to already established carriers.

Institutional arrangements for the provision of enhanced services are somewhat in flux. Basic services are generally defined to be services which perform only the communication function and therefore do not alter the content of messages or perform long-term information storage. Enhanced services embody functions other than the primary communications function, such as information processing and data base management, but which are not feasible without the communications function.[25] There are two broad categories of enhanced services: information retrieval and communication. Examples of enhanced information communications services are Inet 2000 and Envoy 100. These services can be point-to-point or can involve the use of switched network.

However defined, there are a potentially large number of firms that are capable of providing information retrieval and communications services in the North American economy. In its Computer II decision, the FCC deregulated the provision of enhanced services and customer premises equipment. It also mandated that AT&T offer enhanced services and customer premises equipment through a separate subsidiary. In Canada, enhanced services are provided directly by the common carriers, who are subject to regulatory approval of tariffs and other conditions of supply. Bell Canada provides network facilities at tariffed rates for "third-party" provision of enhanced services, as does BC Tel in the case of its data services. However, there is contention about whether the terms of access should allow outsiders to be able to tamper with the carrier's switching equipment (e.g., transmission of data between points may require protocol adjustments which are best handled by boards placed inside the switch). There is also contention related to restrictions placed on Bell Canada and BC Tel with respect to value added data services, specifically with respect to their legal ability to transform or alter data.[26]

In summary, both the long distance and local segments of the telecommunications carrier industry are structurally more competitive in the United States than in Canada. One notable difference in structure exists with respect to the number of firms providing dial-up or private line voice and data services. The recent AT&T consent decree introduced another important structural difference between the two countries in terms of both the ownership linkage between local companies and other segments of the industry and in terms of the number of major independent companies providing local service.

In almost all segments of the industry, US policy-makers have opted for greater reliance on structural "guarantees" of effective competition and less on behavioural requirement and restrictions, in sharp contrast to Canadian policy-makers. As noted at the outset of this section, the US approach is not necessarily advisable for Canadian adoption. However, it does serve as a basis for comparison. An important consideration in formulating Canadian policies is the extent to which the industry is validly characterized as a "natural monopoly", and the degree to which competitive entry threatens the "sustainability" of the efficient industry structure. The efficient structure of the telecommunications' industry is ultimately conditioned by the nature of economies of scale, scope and technological change.

The Industry as a "Natural Monopoly"

The relevance of the natural monopoly issue to policy is usually taken to be the following: if service can be provided most cheaply by single suppliers in individual segments of the industry, or across broad segments of the industry, policies that promote entry may result in higher costs to consumers. In which case, regulation rather than competitive entry must be relied upon to protect consumer interests. On the other hand, if evidence does not support the relevance of natural monopoly, the costs of experimenting with competitive entry may be relatively low.

The standard test for natural monopoly in a multi-product industry is to determine if the firm's cost function is sub-additive. That is, can the firm produce any configuration of outputs at a lower cost than that attained by multi-firm production. In practice, it is extremely difficult to test for sub-additivity *per se*. Hence, empirical tests are directed at establishing whether the sufficient conditions for sub-additivity – economies of scale and economies of scope – are satisfied.[27]

Economies of Scale

Economists talk about two aspects of economies of scale: firm-level economies of scale and product-specific economies of scale. Firm-level economies of scale exist when changes in firm size, defined as simultaneous, equiproportional changes in all inputs, give rise to greater than proportional changes in output. Product-specific economies of scale are said to exist when the unit cost of producing a specific product or service declines with increased production, holding the output of all other products or services constant.

In recent years, there has been a veritable explosion of studies examining production conditions in the telecommunications industry, and a substantial number of these studies focus on the Bell Canada system. Given the substantial number of available studies along with their complexity, it is impractical to review them individually.[28] However, since there is a reasonable degree of consensus in the available findings, a summary of the major conclusions should suffice.

One group of studies has examined the scale-economies issue by estimating production functions for Bell Canada. The majority of these studies accept the hypothesis of overall economies of scale, with some indicating fairly modest economies and others showing quite marked declines in unit costs with expanding overall output. A second set of studies considers the presence or absence of scale-economies by estimating cost functions. The majority of these studies also show the presence of economies of scale, although there is again a fairly wide range of estimates for the scale-elasticity parameter.

It should be noted that most available econometric studies are single output models and as a result, suffer from important methodological limitations. In what is perhaps the most technically sophisticated study performed to date, Fuss and Waverman estimates a three-output cost function of Bell Canada over the period 1952-78. They could not reject the null hypothesis of overall constant returns to scale;[29] however, they also indicated that their estimates of returns to scale are extremely sensitive to the specification of the cost model. This qualification is extremely important given the fact that most single and two-output models for Bell Canada and the US Bell system show robust results with scale elasticity estimates in the range of 1.3 to 1.7.

A focus on overall economies of scale implicitly embodies the notion that entry will be proportionally distributed across Bell Canada's various service categories. Perhaps a more relevant perspective from the regulatory point of view is whether scale-economies would be sacrificed by promoting entry in specific market segments, in particular, competitive toll-private line services. In this regard, the magnitude of extant product-specific economies of scale may be more directly relevant to policies affecting entry conditions in the provision of telecommunications services.

Unfortunately, econometric evidence on the extent of product-specific economies is quite limited. In the aforementioned study by Fuss and Waverman, the authors found that Bell Canada appears to produce private line services subject to increasing returns to scale. However, when they add CNCP's output to Bell Canada's output, they find that the hypothesis of constant returns to scale cannot be rejected.[30]

Engineering studies also provide some evidence on the extent of product-specific economies of scale. In this regard, English argues that it is hard to imagine more than two competitors providing basic long distance (microwave) service in Canada, except perhaps in the most populous areas across Southern Ontario and Quebec.[31] Beigie also argues that substantial scale-economies exist in the transmission trunking phase of the industry.[32] On the other hand, Meyer *et al.* conclude that while there are probably economies of scale in the provision of long distance service (including multiplexing and switching), they believe that these economies are quite modest.[33] Meyer *et al.* also argue that scale-economies for digital electronic switching equipment are relatively minor, and that with the diffusion of multiplexing transmission techniques, economies of scale in long haul trunking may also be declining. They further argue that satellite communication can make entry economically attractive on small scales between particular points and on particular routes under certain conditions.

The suggestion that the magnitude of scale-economies on longer-haul routes may be increasing over time owing to technological change is indirectly supported by results from a number of econometric studies, which show the scale elasticity coefficients trending upward over time.[34] Similarly, Phillips suggests that technological advances over time are accentuating scale-economies in telecommunications.[35] Given the potential relevance of any biases in technological change toward increasing (or decreasing) the magnitude of extant scale economies, we consider some additional evidence in a later section. Before doing so, however, it is useful to evaluate the available evidence on economies of scope.

Economies of Scope

Economists consider a production process to be characterized by economies of scope when for any configuration of multiple outputs, these outputs can be produced at less cost by a firm which operates a multi-product technology than if the same outputs were produced by a number of firms, each operating a single product technology.[36] Economies of scope are an important characteristic of an industry's cost-output relationship, since marked scope economies may contribute to the existence of natural monopoly conditions in an industry, even though there are diseconomies of large-scale production.[37] Conversely, a firm producing more than one product may exhibit increasing returns to scale and still not be a natural monopolist given diseconomies of scope.

The existence and magnitude of scope-economies are also relevant for policies affecting entry conditions. Specifically, it can be shown that entry under conditions of natural monopoly might still occur where a monopolist produces multiple outputs, some of which are partial substitutes, and is subject to substantial economies of scale and modest economies of scope. In this case, a single-product competitor enjoying substantial economies of scale could enter one market if its costs are below those of the monopolist, although entry would increase the total costs to society of producing the chosen array and volume of output. This "sustainability" concern provides another potential efficiency rationale for regulatory restrictions on entry in the presence of substantial economies of scale, particularly when there are modest economies of scope.[38]

Fuss notes that a global test of overall economies of scope in the telecommunications industry is not technically possible. Local economies of scope can be tested for by computing the test statistics for cost complementarities.[39] Available studies tend to find weak or non-existent cost complementarities between local and toll services and between toll and competitive services.[40] However, data problems make it questionable whether existing tests for economies of scope have any statistical value. Given the highly theoretical nature of the sustainability concern, as well as the very limited evidence supporting its empirical relevance, most policy-oriented economists suggest that this concern should not be a consideration in the policy debate about whether or not to promote entry in different segments of the industry.[41] A more qualified position acknowledges the potential for prices imposed by regulators to encourage uneconomic entry. We shall address this point in more detail in a later section.

While the evidence on cost complementarities between local and long distance services may not be of great relevance insofar as the sustainability issue is concerned, it has an important potential bearing on the welfare implications of mandating the separate provision of local and long-haul services. Specifically, if non-trivial cost complementarities exist between sets of services, preventing incumbent carriers from providing a subset of those services will impose cost penalties upon consumers, all other things constant. Any competitive benefits from restricting the freeedom of incumbent carriers to compete in all segments of the market must promise to more than offset the foregone efficiency gains.

In this respect, the dearth of reliable econometric evidence on cost complementaries is regrettable, since the anecdotal evidence in the literature suggests that there are significant cost complementarities between interexchange transmission and local exchange services.[42] These complementarities have been related to technological and managerial factors, and (in particular) to the notion that the design and development of new switching systems can often be optimized by undertaking parallel changes in the transmission network. Equivalently, innovations designed for the local network often share a common technology with innovations designed for message-toll services.[43]

Beigie suggests that managerial cost complementarities may be related to efficiency gains in investment decisions. In particular, tradeoffs between different ways of expanding the network (e.g., looping versus trunking) might be more effectively identified and evaluated when network expansion decisions are centered in a single decision-making unit.[44]

The evidence suggests more clearly that cost complementarities between competitive and message toll services, and between basic and enhanced local services are insignificant. Specifically, econometric studies fail to provide any evidence of even weak cost complementarities between competitive and message toll services. In addition, some observers argue that there are no compelling grounds for accepting the existence of cost complementarities between competitive services such as office intercoms, signaling devices, paging systems and mobile telephone services and basic local and message toll services.[45]

This latter assessment may be increasingly untenable given emerging technological trends. For example, with the introduction of microprocessors, a switch cannot only direct electronic signals but can also process the information carried by the signals. At the same time, terminals that were used to communicate now also can process data. As a result, the common carrier network is increasingly capable of providing enhanced services such as store and forward messaging and data processing that have hitherto been the domain of specialized suppliers.

In summary, the available evidence suggests that the overall cost-output relationship for Canada's largest common carrier (Bell Canada) is characterized by significant economies of scale, although the precise magnitude of these overall scale-economies is uncertain. In addition, several major segments of the network – local and message toll – appear to be characterized by product economies of scale, although the magnitude of extant scale-economies in message toll are considered to be modest by some observers. And, as noted above, one recent study concludes that economies of scale in the provision of private line services are exhausted before adding CNCP's output to Bell Canada's output.

Scale and Scope Biases in Technological Change

Arguments that scale economies heighten the costs of uneconomic entry would be buttressed by evidence that emerging patterns of technological change are accentuating extant scale economies. In this regard, recent technological trends do not suggest any unambiguous scale-economies bias. Specifically, microprocessing technology is rapidly enhancing the capacity of small switching machines, include PBX equipment, thereby enabling smaller firms to accomplish switching operations that formerly required large (and expensive) pieces of capital equipment. At the same time, the gradual replacement of conventional wire pair by fibre optics cable is, by itself, enhancing economies of scale in the local loop, e.g., fibre optics cable can transmit 10,000 times more information than conventional wire pair.

There is somewhat less ambiguity about the impact of recent technological trends on economies of scope. As noted above, microprocessor-based switches can both direct electronic signals and process the information carried by the signals, thereby enhancing complementarities between different services (including basic services) in the local network. At the same time, digital transmission techniques are connecting transmission media into "all-purpose pipelines", that can carry voice, data and graphic images. This development is also enhancing the economics of providing an array of telecommunications services through a common transmission medium.

Economies of Technological Change

As Phillips notes, if science and technological progress offered no opportunities for significant enhancements in services and reductions in costs, any static inefficiencies caused by uneconomic entry might well be bearable; however, if the technological change process itself is marked by substantial economies of scale and scope, permitting uneconomic entry might entail substantial long-run inefficiencies in a technologically progressive industry. This concern is obviously of potential relevance to the telecommunications industry.

Hypotheses relating technological progressivity to firm size and vertical integration in the telecommunications industry were discussed in the Restrictive Trade Practices Commission Inquiry into the vertical link between Bell Canada and Northern Telecom.[46] The evidence presented was unsupportive of simple hypotheses, although (when viewed broadly) it was consistent with recent general findings in the industrial organization literature. Specifically, the evidence suggested that firms of different sizes enjoyed distinct comparative advantages in the innovation process. Large firms tend to focus more intensively on basic research and on accomplishing substantial technological breakthroughs, while smaller firms are especially adept at finding market niches and bringing new products to market quickly in order to exploit those niches. This is wholly consistent with a broad set of studies that conclude that there is no single optimal size of firm to promote technological change. Rather, a mix of firm sizes is more likely to be optimal.[47] It also tends to be consistent with recent findings that the relationship between firm size and technological change varies over the life-cycle of the industry. As Kaplinsky argues, in industries undergoing radical technological change, the origin of these industries is to be found in larger user-firms who innovate to meet their own product needs. Thereafter, key individuals spin-off from the pioneers to establish new small firms dedicated to enhancing and exploiting the new technology. Ultimately, both large and new, small firms coexist in the industry.[48]

The relationship between vertical integration and technological progressivity came in for particular scrutiny during the RTPC Inquiry. A frequently cited hypothesis was that vertically integrated firms are especially well equipped to promote innovation in industries characterized by "system interrelatedness". This hypothesis is related to Beigie's earlier-cited suggestion that there are economies in centralizing network expansion and modification decisions in a single decision-making unit. Unfortunately, there was little conclusive evidence on this point presented at the RTPC Hearings. But more recent evidence casts some doubt on the reliability of the hypothesis. For example, Denny, *et al.* found that over the period 1972-78, Alberta Government Telephones, essentially a non-integrated carrier, enjoyed a higher total factor productivity growth rate than Bell Canada and BC Tel, both of which have captive equipment suppliers.[49] Moreover, a statistical study by Globerman and Diodati (*op cit.*) found that *de jure* vertical integration did not encourage increased supplier R&D, other things constant; however, a dominant purchasing position by a user did encourage greater R&D intensity in a telecommunications equipment supplier, whether or not that supplier was owned by the user.

The available evidence is much less equivocal in concluding that inter-firm rivalry along with the threat of entry stimulates the more rapid diffusion of new technology. This relationship has been documented for a wide range of industries, including the telecommunications industry.[50] An implication of the foregoing finding is that, to the extent that vertical integration acts as a barrier to entry (a point we consider in a later section), it could retard technological change in the telecommunications industry.

Policy Implications of the Evidence on Natural Monopoly

Having outlined the available evidence on economies of scale and scope, it is useful to briefly explore the policy implications of the findings. The available evidence suggests that a liberalization of entry conditions and increased competition among extant firms will stimulate technological change. At the same time, the evidence of fairly substantial overall economies of scale raises a strong concern about efficiency losses associated with uneconomic entry. In this context, a concern exists not only with entry, per se, but also with subscribers "dropping off" different segments of the network (including the local network).

But this concern raises the following question: if a given volume of output can be produced most efficiently by a single firm, and if the incumbent firm is producing the competitive rate of output at competitive prices, why would there be any need for policies to restrict market entry? That is, wouldn't restrictions on entry only serve to protect inefficient performance or non-competitive prices in an industry marked by scale-economies? Kahn offers some tentative rebuttals to the assertion under three broad headings: imperfections of competition; the discrimination problem; and the promotional case.[51]

Imperfections of Competition

Imperfections of competition are suggested to be grounded largely in imperfect knowledge on the part of investors. In particular, imperfect knowledge on the part of investors may lead to overly optimistic assessments of the potential size of markets and to excessive entry on the part of new firms. Immobility of capital and labour can produce "destructive" competition when capacity becomes excessive. In the event, resources are utilized in activities that do not represent the most valuable outlets for their use. Economists frequently point to the fishing industry as an example of a sector that suffers from chronic excess production capacity owing to excessive entry and immobility of capital and labour. Closer to the case at hand, it has been suggested by some observers that excessive entry has occurred in the terminal attachments segment of the telecommunications industry pursuant to interconnect decisions in the United States and Canada.

It would take us too far afield to evaluate this "excessive entry" argument. We will simply note that a theoretical case can be made for the argument, especially when valuable property rights attached to the relevant production process (e.g., patents, trade secrets or industrial designs) are contestable or easily attenuated.[52] On the other hand, theoretical arguments can also be made that awareness of potential entry by others may itself be a barrier to entry. Rather than leading to excessive entry, opening-up a market may therefore have relatively little impact on actual entry.[53]

Without attempting to evaluate the potential for excessive entry in the telecommunications sector, it is at least arguable that analogies to the fishing, agriculture and other resource-intensive industries, where the problem has been most commonly identified, are inappropriate for a variety of technological and economic reasons. Furthermore, it is quite possible that regulators may be as (or more) mistaken than private investors about the cost-minimizing number of firms in an industry. In any case, if economies of scale are weak or non-existent, the risk that deregulation will promote excessive entry is of substantially less concern than if scale economies are a dominant feature of the industry.

The Discrimination Case

Where rates for certain categories of service are above marginal cost by the design of policy-makers and where selective entry into relatively high price-cost margin segments of the industry is permitted by regulators, entry into these segments might take place even though production of the relevant services is marked by economies of scale. This concern is analogous to the familiar "cream-skimming" argument that has been applied by common carriers in their position against allowing entry into long distance message toll and private line services.

The specific argument of the common carriers is that entry-attracting prices on high-volume toll services are required to compensate the carriers for losses associated with the provision of local service and intra-provincial service on low-volume routes.[54] We shall consider this argument further in a later section. The point to stress here is that the allocative (as opposed to the distributive) implications of entry motivated by discriminatory pricing depend largely upon the magnitude of the entry encouraged by discriminatory cross-subsidies, and on the extant scale-economies sacrificed by that entry.

The Promotional Case

In this third case, entry could take place in markets characterized by economies of scale if incumbent producers are required to provide services for which it is difficult or impossible to recover the full costs of service provision. For example, AT&T has long argued that it is effectively required to maintain America's telecommunications infrastructure for broad purposes, such as national defense, without being able to charge directly for the service.[55]

The promotional argument in practice is closely related to the discrimination argument. In particular, the notion that universal access is a broad social objective necessitating subsidies for local telephone service is similar in spirit to the aforementioned national defense imperative for discriminatory cross-subsidies. Indeed, the national defense analogy may be quite appropriate for Canada when applied to subsidies for rural telephone subscribers, since subsidies for such users may be argued to promote national sovereignty or cohesiveness.

In summary, given the similar nature of the discrimination and promotional cases, Kahn, in effect, offers two broad arguments for why inefficient (or excessive) entry might take place in markets characterized by economies of scale. The first is that market participants are mistaken about critical economic attributes such as the potential size of the market, the costs of incumbent producers, or the quality of output provided by new entrants. The second is that incumbent producers must bear certain costs that entrants can avoid. While the first argument seems to us quite speculative, the second describes what many observers take to be a fundamental feature of the telephone network.

Cross-Subsidies in the Pricing Structure

An intentional (or unintentional) public policy commitment to subsidize one or more sets of subscribers introduces potentially important distortions into patterns of resource allocation. In particular, where supernormal profits must be earned to subsidize activities in other sectors, entry will be encouraged in the former sectors, even if incumbent firms in those sectors are performing efficiently. On the other hand, there will be minimal entry pressures in the subsidized sectors, even if it is possible to improve performance. Under these circumstances, the salutory benefits of potential (and actual) new-firm entry cannot necessarily be counted upon.[56]

Several issues therefore arise in dealing with what might be called the "cross-subsidy" disclaimer to open entry. One is the nature and magnitude of existing cross-subsidies in the tariff structure of telecommunications carriers. A second is the distributional consequences of existing cross-subsidy patterns.

Obviously, an evaluation of the cross-subsidy concern requires a working definition of cross-subsidy. One conventional definition maintains that cross-subsidization occurs when revenues from one product are in excess of the product's causal costs and this excess is systematically employed by the supplier to allow prices in another product to recover revenues which are below the causal costs of that product. In this regard, a number of fairly well established hypotheses exist in the literature regarding the nature of cross-subsidies in the telephone network. The major ones suggested are:

- long distance or inter-exchange services subsidize local exchange; and
- services such as extension telephones, PBXs and call-forwarding subsidize basic interconnection.[57]

It is also alleged, at least in Canada, that business local service rates subsidize residence local rates. Furthermore, as a matter of conscious policy in certain provinces, most notably Saskatchewan and Manitoba, and at least implicitly in all others, long distance intra-provincial telephone revenues are used to subsidize rural services.[58]

It should be noted at the outset that the magnitude and even the direction of the network cross-subsidies identified will depend upon the cost-separation principles adopted. The topic of cost-separation has been the subject of a lengthy and exhaustive investigation directed by the CRTC, as well as an extensive debate in the academic literature. Within the time and resource constraints of this study, we can only briefly summarize the main findings of the Cost Inquiry Officer.[59]

One major recommendation is the use of causal embedded cost information for a test year, for the costing of broad categories of existing competitive and monopoly services, both to assess whether the rates for existing competitive services are compensatory, and to monitor the actual levels of contribution from broad categories of service toward the overall revenue requirement of the terrestrial carriers. The Inquiry Officer also recommended that non-causally related or fixed common costs be assigned to a separate common cost category rather than be allocated to existing broad service categories. Amenability to audit was defined as a requisite criterion for cost-allocation procedures. On this ground, the Inquiry Officer recommended against adopting Bell Canada's 5-Way Split methodology.

The critical feature of the costing methodologies traditionally employed by the telcos is the identification of the basic local switched service as the core service of the common carrier's telecommunications' network. The non-traffic sensitive costs of providing the core service, including the telephones and drop-lines in residences and businesses, the wires that connect the telephones to local switching centres and the connections in these centres are seen as properly assigned to the local service cost base. The difference between flat-rate local revenues and the costs of providing local service, which are heavily influenced by the amortized costs of the designated local plant and equipment, constitute the net revenue shortfall on local service.

The data reported in Table 1 indicate the estimated magnitude of the local service shortfalls in the Bell Canada network. Given the cost allocation procedures under Bell Canada's 5-Way Split Analysis, the local service deficit was around $1.24 billion in 1983 (compared to $170 million in 1980), or around $80 per telephone in Ontario and Quebec. This deficit was more than offset, however, by the surplus earned on toll service.

As noted above, the 5-Way Split methodology was criticized by the Cost Inquiry Officer. Notwithstanding, the point remains that the assignment of non-traffic sensitive costs to the local segment of the network results in a substantial revenue shortfall for that segment. This is further illustrated in Table 2 which indicates revenues and expenses by lines of service for 1982 as reported by Sask Tel. The reported cross-subsidy patterns for the prairie telco are quite similar to those for Bell Canada. The (unreported) relationship for BC Tel, using the 5-Way Split methodology, shows an even greater relative subsidy of the local segment of the network. Specifically, BC Tel estimates that it costs $2.23 to earn $1 in revenue at the local level. On the other hand, the provision of long distance service costs only 36 cents to generate $1 in revenue.[60]

It might be noted that the subsidy estimates reported in Tables 1 and 2 are broadly consistent with US estimates. For example, AT&T officials have argued that the monthly subscriber line cost for the Bell system averages $26, while the average residential telephone rate (including some local calls) is about $10. The New York State Public Service Commission estimated that (in 1977) local exchange revenues were only 43 percent of direct costs. The direct costs of the toll network facilities furnished wholly within New York State were approximately 50 percent of revenues.[61]

There is no equivalent breakdown of local revenues and costs by business versus residential user. However, fragmentary data suggest that residential customers are the recipients of this subsidy. In particular, Bell Canada's business service (individual line) rates are approximately three times residential rates, while Bell Canada's residence telephones outnumber business main telephones by 6 to 1. At the same time, business loops are less costly than residential loops.[62]

The cross-subsidy estimates reported above have been challenged on several grounds. One is that the local loop provides access to the toll network. Therefore, a prorated portion of the costs of network access (including the local loop) should be recovered in charges for using the inter-exchange network.[63] A major problem with this argument, as both Kahn and Johnson point out, is that it is economically inefficient to assign usage-related charges to usage-insensitive inputs.[64] Yet this would be the outcome of recovering part of the cost of the local loop from usage sensitive toll revenues. As we will discuss in a later section, efficient pricing would call for a two-part tariff consisting of an access charge and charges that are sensitive to usage patterns. Moreover, a usage-related prorating of local loop costs to the toll network would not substantially reverse the direction of the findings in Tables 1 and 2, since local calls comprise approximately 95 percent of all telephone calls made in Canada.

A second challenge to the telco cross-subsidy estimates is the charge that common carriers have overinvested in common plant and (furthermore) that their depreciation schedules have failed to take account of technological changes affecting the industry. As a result, they have large amounts of equipment that are overvalued on the books. Firms not subject to rate-of-return

Table 1
Bell Canada's Estimated Revenues and Costs By Service Category – 1983 ($ Millions)

(1) Category	(2) Revenues	(3) Expenses	2-3	3/2
Toll Service (Non-competitive)	1,988	626	1,362	.32
Competitive Network	386	317	69	.82
Competitive Terminal	878	834	44	.95
Common	99	333	(234)	
Total Company	$4,740*	$4,740		

* Versus $4,710 for non-consolidated telecommunications revenues.

Source: Response to Interrogatory, Bell (CRTC), 22 May, 1984 – 222-IC.

Table 2
Net Revenue and Expenses by Lines of Service For the Year 1982 – Sask Tel ($ Millions)

(1) Category	(2) Revenues	(3) Expenses	2-3	3/2
Local	$52.3	$102.9	$(50.6)	$1.97
Toll	179.4	54.8	124.6	.31
Optional	25.9	24.0	1.9	.93
Unregulated	35.3	26.8	8.5	.76
Common	2.8	79.4	(76.6)	
Total	$295.7	$287.9		

Data provided to the author by J.G. McGregor, Assistant Vice-President, Planning and Development, Sask Tel. No explanation is given for the discrepancy between total revenues and total expenses.

regulation allegedly would have written these costs off as capital losses to their shareholders long ago, and then reduced prices to bring them into line with existing costs of production.[65]

A broader concern is that non-traffic sensitive (or access) costs should not be allocated to either the local or toll segments but should stand as a separate cost category. In fact, since most local costs consist of loops and other "non-traffic sensitive" inputs, the bulk of the telcos' cost shortfalls are in this access category.[66] The argument is consistent with our discussion of efficient pricing below. But the argument does not gainsay the notion that revenues in the long distance sector exceed usage sensitive costs, with the cross-subsidy going to the access category. Nor does it obviate our preceding discussion of allocative inefficiencies given the existing pricing structure.

In evaluating the objections to extant cross-subsidy estimates, most observers acknowledge that the inherent joint and common costs among the several services (especially local and inter-exchange) can be allocated only arbitrarily. This allocation becomes more detailed, but no less arbitrary, with the introduction of various classes of voice services (e.g., switched private line, WATS, MTS) and non-voice services (e.g., data, teletext and video) into the problem. Moreover, it may well be that the market value of the local network lies below the book value, and that regulators have allowed carriers to load costs into the local network that actually had more to do with improving toll service. But this does not gainsay the legitimacy of concerns that entry into hitherto monopoly segments of the industry will be guided as much or more by regulatory-induced price-cost markups than by the ability of entrants to supply existing services at lower costs than the incumbent telcos.

In our estimation, there is no practical way to determine how much smaller a subsidy would appear for local service in Tables 1 and 2 if local service costs were based on the economic rather than the book value of related capital; however, extensive actual and prospective bypass activity would be further evidence of pressure on telcos to readjust their rate structures, especially to the extent that bypass was concentrated in specific segments of the network.

The available evidence suggests that an increasing number of US firms are bypassing the common carriers' toll and (to a lesser extent) local networks.[67] The functional definition of bypass is any transmission path between a customer premise and a point of presence that does not use public switched network facilities. It would take us too far afield to detail the various forms of bypass that are taking place in the US; however, we offer the following illustrative examples:

- Merrill Lynch and Co. Inc. is joining forces with Western Union Corp. and the Port Authority of new York City to build a $225 million office, park and communications centre on Staten Island. The Telepost centre will include satellite antennas and be connected to Manhattan business districts by fibre-optic cables laid in subway tunnels.
- Olympia and York Developments Ltd. of Toronto has formed a $100 million (US) joint venture with United Telecommunications Inc. to pack its buildings with fibre optics, computer network outlets and satellite communications gear to lure tenants to its real estate properties.
- Numerous railways and more than a dozen US electric and natural gas utilities have entered into joint ventures to lay fibre-optic cables along existing rights-of-way and are selling the capacity to private long distance telephone users.[68]

These "generic" examples illustrate that actual bypass activity is occurring in both the long distance and local segments of the telephone network. Moreover, the advent of cellular radio enhances the potential for selective bypassing of the local network for point-to-point local communication. Unfortunately, there is virtually no reliable information available (to our knowledge) on bypass developments in Canada. There are indications, however, that existing rate structures are encouraging at least selective attempts to circumvent the use of common carrier services. In one recently disclosed case, CamNet Communications Inc. and LongNet Telecommunications Inc. are both offering BC Tel subscribers access to cheaper long distance calls to the United States by installing equipment in nearby centres in Washington state. The switch then routes the call to its destination by the cheapest means via routes offered by a number of competing US long distance carriers.[69] This example supports the contention of a growing number of telco executives that rate rebalancing efforts in the US will put increasing pressure on Canadian common carriers to move in the same direction.

To be sure, the mere presence of bypass activity is not conclusive evidence that uneconomical cross-subsidies are embedded in the common carrier telecommunications network. In particular, it may be the case that bypassers (or those supplying bypass facilities) are more efficient than established carriers. It is also plausible that bypass technologies are more cost-effective than conventional cable distribution systems. Some affirmative evidence in this regard is Irwin's observation that the regional Bell operating companies are laying fiber optics, applying for digital termination systems and establishing new generations of PBX.[70] To our knowledge, no study is available that convincingly identifies the extent of "uneconomic" bypass. However, a recent simulation study by GTG concludes that the major destabilizing force in the current environment is the non-traffic sensitive-induced price distortion for exchange-carrier-provided switched access facilities.[71]

Another indirect piece of evidence suggesting that reported cross-subsidies from toll to local are not (at least entirely) accounting artifacts is the ongoing dispute between Edmonton telephone and Alberta Government Telephones over the sharing of long distance revenues. The latter has always argued that toll revenues are required to subsidize costly rural phone systems, including Calgary, which explains why telephone charges are higher across the board in Edmonton's local system than in Calgary's local system.[72] Without evaluating Edmonton Tel's precise claims, it seems plausible to conclude that the willingness of both sides in the dispute to engage in costly legal and extra-legal battling is evidence of "rent-potential" associated with the provision of long distance service.

The implications of the foregoing analysis for policies towards entry into hitherto monopoly segments of the industry are at least qualitatively clear. In particular, the presumed salutory effects of actual and potential entry on industry performance will be mitigated, if not entirely obviated, by persistent (and in our view real) concerns about "cream skimming". Indications are that extant problems of cross-subsidy will increase in the future, given changing patterns in the use of the local network, including an increasing "on-line" use of home computers for inter-active data services. Furthermore, an emerging emphasis on replacing paired wire with fibre optic glass in the local network threatens common carriers with a substantial increase in capital costs related to the provision of local service. Efforts by common carriers to load any additional costs of expanding the residential local network into toll rates or local business rates will clearly exacerbate the bypass threat outlined above. And an increased incentive and potential for bypass poses threats of higher costs for subscribers remaining on the network.

In this section of the paper, we were concerned with the implications of cross-subsidies solely with respect to policies towards entry. It might be noted that rate-rebalancing also has important distributive implications, as well as impacts on allocative efficiency. We shall address these latter concerns when we evaluate the possible implementation of usage-sensitive approaches towards pricing. In the next section, we consider another caveat raised against a policy of open entry in competitive market segments; i.e., concerns about predation.

Predation Concerns in the Telecommunications Industry

Common carrier provision of some services as a "natural monopolist" and of others as part of a group of competitors has raised substantial concerns about potential cross-subsidization of competitive services by monopoly services. In the literature and the surrounding policy debate, this concern has been identified as the threat of predation. This concern is summarized by McKie:

> If certain sectors of the firm are unregulated, the control authority needs some devices for preventing inflation of the regulated rate base or of expenses attributed to the regulated activity and hence improper inflation of prices and improper transfer of costs and revenues within the firm. Regulation must also restrain the monopoly sectors of the firm from "subsidizing" other activities, e.g., intentionally or inadvertently pricing some of its goods and services below marginal costs, and recouping from inflated revenues within the monopoly sector. The regulator must present the utility from subsidizing its affiliate or favouring it when buying from or selling to it and in this way extending its protected monopoly into adjacent markets.[73]

There is no doubt that this predation concern will become increasingly prominent as new sources of supply for long-haul and enhanced services continue to appear. The CRTC's Cost Inquiry has devoted a good deal of attention to this issue to date. The Commission has proposed a set of costing and economic evaluation procedures for approving the offering of new services by common carriers, although the precise nature of these procedures may be modified or amended in the Commission's Phase III decision.[74] We shall review the recommended procedures in a somewhat critical fashion after first examining the severity and policy implications of the predation threat.

How Likely is Predation?

The practical relevance of models of predation has been debated perhaps more intensively than any other anticompetitive concern. Recently, there has been a substantial upsurge in interest on the topic, and this interest has been manifested in debates surrounding telecommunications policy.

Two broad schools of thought on the applicability of predation models to policy-making may be identified. One school maintains that under most circumstances, it will not be profitable for so-called dominant firms to practice predation, and since all industry participants recognize the "irrationality" of predation, any threats or even actions taken to inflict losses on efficient rivals will be discounted by the latter. That is, efficient competitors cannot be persuaded to cease competing in the long-run by temporary actions of major firms to drive prices below marginal cost. In this circumstance, it will never pay a dominant firm to initiate predatory actions.[75]

A second school argues that the ability of dominant firms to make credible threats of predation is more robust than the first school acknowledges. In particular, the credibility of predation threats can be enhanced by commitments to courses of action that are not easily reversible.[76] For example, a dominant firm might intentionally build excess plant capacity to "flood the market" with output if rivals aggressively seek to expand their market shares. Once the excess capacity is in place (presuming it is not fungible), the costs of predation are relatively low and the threat to predate becomes more plausible. As another example, a firm might insert a commitment in all contracts with its customers to meet the lowest price available even if it must make refunds to customers. By publicizing this commitment, the firm signals actual and potential rivals that it has eliminated its flexibility to "be reasonable", and that efforts to take away its market share will certainly be costly for all concerned.

Strategic predation, as evidenced by the examples in the preceding paragraph, is not necessarily a profitable strategy. In particular, if the strategic commitments are costly and if the predator's ability to achieve high price-cost margins is constrained, by actual or potential competition, strategic behaviour may be purely a theoretical curiosity. The two schools of thought can ultimately be reconciled, therefore, around the following point: as the long-run competitive disadvantage of incumbent dominant firms increases and becomes increasingly recognized throughout an industry, the less likely it is that simple (or complex) forms of predation can be successfully practised.

While economists have generally been wary about embracing the relevance of predation theory in antitrust litigation, there is a disposition to credit the theory with greater relevance when considering the behaviour of regulated firms. More specifically, there is a fairly widespread notion that regulated firms enjoy an enhanced ability to predate compared to non-regulated firms.

The impact of regulation on the ability to predate can be illustrated by considering a firm that produces two kinds of output. The first (q_1) is produced subject to common carrier regulation, while the second (q_2) is produced and sold in unregulated markets. In the conventional model of price predation, the firm lowers the price it charges for q_2 below the marginal costs of producing q_2 in order to drive rivals out of the industry. This strategy would only make sense if the firm could expect to more than recoup its losses associated with predating after it has driven its rivals from the market.

If the unregulated markets are "contestable", a concept we shall explore more fully below, the predator will be unable to sell the second output at prices above marginal cost for any length of time. Thus, it will be unable to recoup its early losses on q_2 with higher profits on q_2 in later periods. Nor will it be able to raise prices directly on q_1 to offset the costs of predating, if it is earning the target rate of return in its regulated activity. However, where an Averch-Johnson bias is present, the regulated firm can benefit by purchasing q_2 from its unregulated division at a price above marginal cost and incorporating the cost into its regulated rate base. Where the allowable rate of return on the rate base exceeds the firm's cost of capital, the regulated division will find it profitable to pad its rate base.[77] At the same time, the unregulated division can employ the implicit subsidy on its intra-firm sales to subsidize below-cost prices on its arms-length sales.

While this argument is superficially plausible, it has nothing directly to do with predation. Specifically, if the q_2 markets are, in fact, perfectly contestable, the only benefit to the firm from taking the actions described above derive from the Averch-Johnson effect. This follows from the notion that the firm would never be able to sell its q_2 output at prices above the q_2 division's true marginal costs. Thus, it would never be able to recoup the implicit subsidies it passes on to its customers. It would be better off to engage in the implicit transfer described and use the profits on sales made to the regulated division to pay dividends to a holding company, rather than subsidize customers of its unregulated division.

It is precisely the incentive described above that underlies the concern expressed by the Restrictive Trade Practices

Commission (RTPC) apropos the reorganization of Bell Canada. Specifically the RTPC argued that under the old structure, telephone subscribers benefitted at least partially from increases in Northern Telecom's profits because dividends from Northern flowed directly to Bell Canada and helped reduce the amount of rate increases. Under the reorganization, dividends flow to Bell Canada Enterprises, a holding company for both Bell Canada, Northern Telecom, and other affiliates. While Bell subscribers no longer enjoy any indirect benefit of Northern Telecom's dividend payments, Bell shareholders retain their interest in Northern's profit growth through their shares in the holding company. Thus, "inappropriate" equipment purchases would harm subscribers and benefit Bell shareholders.[78]

A second model of potential predation might be briefly considered in which both the q_1 and q_2 outputs are produced and priced subject to an overall rate-of-return constraint. In this case, a reduction in the price of q_2 that caused a decline in the firm's overall return below the allowable rate would permit the firm to apply for an increase in the price of q_1 to restore the firm's overall return to its allowable target. Presuming that the price elasticity of demand for q_2 was significantly greater than the price elasticity of demand for q_1, the overall volume of output produced would presumably increase, as would the firm's overall rate base. Once again, if the firm's allowable rate of return exceeds its cost-of-capital, it presumably has an incentive to expand its rate base. In this case, predation might prove to be a profitable long term strategy for common carriers, even if the underlying structure of the q_2 markets was contestable.

The implication of this second model is that "flawed" rate-of-return regulation can create incentives for below-cost pricing in specific markets, even when those markets are not "naturally" amenable to monopolization. But in the stylized model illustrating this point, it seems more effective to deregulate the q_2 market rather than to introduce a costly administrative apparatus to monitor the reasonableness of the q_2 prices.

The possibility must be acknowledged that "dominant" firms motivated by non-profit objectives might engage in cross-subsidization even if it is unprofitable. For example, our preceding analysis suggests that management interested in maximizing market share might find the cross-subsidization described to be in its self-interest. And if management is ignorant of the true marginal costs of serving different markets, inadvertent cross-subsidization could take place. The point here is that unless management's objectives were known, a number of market solutions (and policy conclusions) are possible. Indeed, one can conjecture a set of objectives (including a taste for the "quiet" life) that would lead management of regulated companies to cede market share in competitive sectors. Ultimately, one must accord greater relevance to one or another set of management objectives to obtain any degree of determinancy in economic models. The notion that managers are primarily concerned about profits continues to serve as a robust assumption upon which to derive conclusions about likely patterns of economic behaviour.

The main conclusion of this section of the paper therefore is that predation is a plausible threat only if markets are inherently incapable of displacing inefficient producers by more efficient producers. Hence, the burden of evidence rests upon an examination of what economists have identified as the contestability of markets. Specifically, in contestable telecommunications markets, concern about predation on the part of the established common carrier is an unacceptable basis for denying both open entry and unregulated pricing.

The Contestability of Telecommunications Markets in Canada

In a perfectly contestable market, the competitive output rate (i.e., the output rate at which price equals marginal cost) would be produced regardless of how many firms were competing in that market. The sufficient conditions for perfect contestability are costless entry and exit.[79] Since these highly idealized conditions will virtually never be realized, evaluation of contestability rests upon a set of secondary characteristics related primarily to elasticities of demand and supply in relevant markets.

In particular, contestability will be related to consumers' willingness to switch suppliers. In their evaluation of the contestability of US telecommunications' markets, Willig and Katz point to the high degree of concentrations of interstate traffic as having important consequences for the contestability of that market. First, only a small proportion of all consumers need to switch suppliers in order to have a major impact on AT&T's sales. Second, this concentration implies that some consumers have relatively large demands for intercity services and thus will have strong incentives to search for better suppliers.[80]

Willig and Katz report that the top 4 percent of business customers in terms of individual demands generated 62 percent of business interstate traffic in 1976. In the same year, the top 4 percent of household consumers generated 30 percent of all household interstate telephone traffic. Unfortunately, we do not have comparable data available for Canada on a comprehensive basis. However, we do have some representative usage data provided to us on a confidential basis by a non-Bell telco. These data are reported in Table 3. It is obvious from the data that long distance calling is highly concentrated among a relatively small number of subscribers. Indeed, the Canadian pattern is quite comparable to the pattern reported by Willig and Katz.

Table 3
Concentration of Long Distance Revenue
For a Non-Bell Telco (1983)

Residences	Percentage of Long Distance Revenues
Top 20 percent	68
Top 10 percent	48
Top 5 percent	33
Top 1 percent	12
Business*	**Percentage of Long Distance Revenues**
Top 20 percent	89
Top 10 percent	84
Top 5 percent	77
Top 1 percent	58

* All inter-exchange, private line and MTS
Source: Anonymous Telco

Willig and Katz note that consumers in the US have demonstrated a substantial willingness to switch to alternative suppliers of intercity voice services if these carriers offer lower prices than does AT&T. Since only Telecom Canada members can legally provide switched voice-message service, it is not possible to offer similar evidence for Canada; however, there is no reason to believe that if competitive alternatives were available, Canadian consumers would be less willing to take advantage of lower prices.

The ability and willingness of consumers to switch to alternative suppliers of long distance services would be enhanced with the legalization of brokerage and resale. Resellers would help to pass the benefits of low prices for large purchases on to consumers with smaller demands, while companies offering brokerage services would help consumers find the best carriers for their calls. Large buyers of long distance services presumably have the ability, in any case, to evaluate alternative telecommunications offerings.

To be sure, Canadian market conditions are not completely analogous to those in the US. In particular, a concern about equal access to local exchange networks may dampen the willingness of Canadian consumers to switch carriers. With the divestment of the Bell Operating Companies from AT&T's Long-Lines division, this is not a concern in the US. Thus, measures to guarantee equal access to local exchange networks are required to enhance the contestability of long-haul markets in Canada. This objective may be extremely difficult to realize under the current patchwork of federal and provincial regulation, especially given the clear preference (to date) of several provinces to preserve the Telecom Canada monopoly in switched inter-exchange services.

The contestability of telecommunications' markets is also related to the willingness and ability of competitors to expand their services to satisfy demand. When a firm is confident that prices will remain above its cost of supply, expansion is likely. This condition is more likely to be satisfied when market growth is rapid, since:

- there is a greater likelihood that a new carrier could make investments in additional capacity without depressing prices below its incremental costs; and
- there is less chance that the incumbent common carrier has sufficient capacity to raise its output and thereby depress prices in response to investment by the expanding firm.

Where there is a significant uncertainty about whether future prices will cover the incremental costs of providing service, the magnitude of sunk costs will be an important conditioning influence on the willingness of competitors to expand their output. Sunk costs are those costs that the firm would have to continue to bear even if it were to withdraw from the market (barring bankruptcy). When sunk costs are large and a firm expands unsuccessfully, it will incur large losses since, regardless of how much revenues decline, it will continue to bear costs. Conversely, when these costs are low, the risk of expansion or entry will be low, and the threat of entry is likely to be strong. At the extreme, when sunk costs are zero, expansion is riskless.

The costs sunk in investment in additional capacity will tend to be low risk when there is rapid market growth, since even if the incumbent common carrier dropped its prices to the level of its incremental costs, the competing firm could use its extra capacity to serve the increased demand resulting from overall market growth. Risks associated with capacity expansion can also be mitigated by inducing consumers to sign long-term contracts before incurring the sunk costs of expansion.[81]

Willig and Katz argue that expansion of competition in the provision of intercity transmission services can be accomplished using strategies that have low actual or effective sunk costs. Part of their argument is based on the notion that existing carriers (such as MCI) can expand their capacity in many cases by building relatively short spurs from their already extensive geographic network. In Canada, this possibility is relevant only for CNCP. But Willig and Katz also note that an entrant's costs can be held down by targetting its market at customers who do not require comprehensive geographic coverage (e.g., brokers or large, multiplant businesses). Given the concentration of Canadian business and population in the Windsor-Quebec City belt, this type of selective entry seems eminently plausible in Canada.

The advent of satellite communications has also reduced the barrier to entry created by sunk costs. Specifically, transponder capacity could be leased by competitive carriers, while earth stations and requisite switching equipment could be expected to maintain substantial resale value. In addition, the "up front" costs of expansion might be spread over multiple users by connecting several large customers to a single earth station. Or a group of business consumers might establish a common set of terrestrial facilities with which to receive a variety of satellite-based telecommunications services.

Notwithstanding recent moves, such as the Department of Communication's announcement that ownership of uplink facilities for satellite transmission will be liberalized after 1986, so that large business and institutional users will be able to make more direct use of this capacity, Canadian government policy restricting the ownership and utilization of domestic satellite capacity is a formidable determinent of the contestability of markets for long distance telecommunications services in Canada. The balkanization of Canada's telecommunications market also constrains the contestability of those markets. Specifically, the ability (and seeming commitment) of Prairie and

Maritime governments to preserve the common carrier monopolies under their jurisdictions reduces the potential market for aspiring entrants into long-haul markets.

It might be objected that the likely new entrants into domestic markets for long distance service are US carriers such as MCI and GTE Sprint. Undoubtedly, these specialized US carriers are capable of entering the domestic market quickly and (presumably) effectively. Thus, moderating strict Canadian ownership requirements for common carriers would substantially enhance the contestability of Canadian long-haul markets in the short-run. However, there are a variety of potential Canadian-owned entrants into the long distance voice and data markets besides CNCP. For example, within regional markets, transportation companies such as BC Rail already own microwave facilities and rights-of-way and (presumably) could expand existing capacity on an incremental basis. Pipeline carriers also enjoy the capacity to provide communications services over terrestrial based systems for given regions of the country. In this regard, suggestions have been made that Bell Canada's purchase of a controlling interest in Trans-Canada Pipelines (TCPL) was, at least in part, motivated by a desire to preempt TCPL's entry into the industry in the event of interexchange competition. Electric power companies are also potential entrants. In the US, electric power companies are installing fiber optics along their rights of way. The excess capacity of fiber optics permits the delivery of voice, data, video and graphic services through both long haul and local distribution facilities. The example provided by Imperial Oil, which has established a private satellite network linking Toronto, Calgary, Norman Wells, Alberta, and Tuktoyaktuk, NWT, suggests that large resource companies are also potential entrants.

Given sufficient incentives, cable companies also represent potential entrants into the long distance market, especially if they were permitted unrestricted access to satellite capacity. And with the liberalization of reselling, a host of large industrial and commercial concerns would be in a position to install their own transmission capacity and "fill-out" any excess capacity through resale to smaller firms. In the US, for example, hotel chains, such as Hyatt and Hilton, and large business firms, such as NCR, GE and United Brands, are reselling part of their transmission capacity purchased in the first place for their primary business.[82] We stress that such widespread entry is not necessary to ensure contestability. Rather, only the realistic threat of entry is required. Hence, while the relatively small

Canadian telecommunications market is, on the margin, a handicap to contestability, it is not (in our opinion) a prohibition to contestability.

In summary, a review of the factors conditioning the contestability of long distance markets in Canada suggests that government policy is a major barrier to competition. Accordingly, we believe that a substantial liberalization of barriers to reselling and enhanced access to satellite capacity should be part of any move toward interexchange competition. Nevertheless, monopoly ownership of local switching capacity and the inevitable time lags associated with new entry pose additional (although not necessarily insuperable) barriers to contestability. We will discuss these concerns further in a later section dealing with policy recommendations.

The two sectors to consider in respect of their contestability are the equipment sector (including the interconnect segment) and enhanced services. With respect to the former sector, we can be fairly unequivocal. The relatively large number of equipment suppliers (for both switching and transmission equipment and PBXs) assures that control over equipment supply is not a plausible barrier to the entry of new communications carriers. And with the convergence of computer and communications technologies, the universe of potential suppliers of telecommunications equipment will expand significantly.

Interconnect companies in Canada have been quite vocal in their charges that the telephone companies are engaging in predatory pricing in the telephone equipment market by selling equipment at below cost, and making the difference up elsewhere.[83] Clearly, one must be quite cautious in accepting these charges at face value, since independent interconnect companies have a strong incentive to obtain regulatory relief from legitimate competition on the part of the interconnect subsidiaries of the telcos.

In this regard, the experience of the industry, to date, belies the credibility of the predation argument. Specifically, the data presented in Table 4 show that independent interconnect companies (CTG, Rolm and others) and CNCP's subsidiary (TTS) have all enjoyed remarkable growth over the past few years. While it is true that Bell Communications Systems Inc. (BCSI) has moved ahead of CTG in total revenue, this is hardly evidence of predation. Given the number of interconnect companies (estimated at 117), the growth of the interconnect industry and the obvious ease of entry, a strategy of predating is implausible. Nevertheless, the issue is not devoid of potential relevance given control over access to the telephone network enjoyed by the common carriers. To the extent that the latter can utilize conditions of access to influence the equipment purchasing decision of subscribers, unfair competition could be a problem in this sector.[84] But this observation merely reinforces the notion that until the local segment of the industry becomes contestable, or unless policy-makers are willing to implement a divestiture solution à la the AT&T breakup, regulatory authorities must be concerned about conditions of access to the local network in competitive sectors of the industry.

Table 4
Canadian Interconnect Revenue
($ Million Canadian)

Company	1981	1982	1983	Growth
BCSI	$10.9	$21.9	$38.1	250%
CTG	12.9	32.1	34.4	166
Rolm	8.0	14.5	23.0	188
TTS	--	7.5	20.0	--
Others	84.2	114.0	154.5	84
TOTAL	$116.0	$190.0	$270.0	133%

Source: Jonathan Chevreau, "Bell unit takes over top revenue position", *The Globe and Mail,* April 13, 1984, B13.

The contestability of the enhanced services segment of the industry follows much along the lines of the interconnect market. Specifically, there are a relatively large number of companies that have the capacity to provide enhanced services, including a plethora of computer communications businesses. And, as in the case of the interconnect segment, the primary competitive concern relates to the monopoly status of the local network. For example, one area of contention centres around Bell Canada's Inet System. This system gives business (and possibly residential) users simplified access to videotex and general databases. The Canadian Information Providers Group has expressed concern that TCTS members might also become information providers themselves rather than just carrying the data provided by other information providers. Some see the Inet system as a vehicle for Bell and other TCTS members to identify major data base users and then market data base services directly to those users. While Bell Canada spokesmen have denied interest in their company becoming information providers, and the CRTC has reaffirmed the principle of separating carriage from content, the Inet case illustrates the potential problems associated with the provision of enhanced services over the local network.[85]

Another issue that has recently emerged in the impasse between Cantel Cellular Radio Group and Bell Canada and BC Tel over a mutually acceptable interconnect agreement. The companies also disagree about whether Cantel should have access to discrete central office codes in each centre where the systems interconnect.[86]

While claims and counter-claims about conditions of access to the local network can presumably be resolved by the CRTC, they illustrate the broader point that where access to the local network is an important feature of competitively provided services, the common carriers may be in a position to predate through regulatory harassment. In this regard, Brock and Evans document the extended costs and delays AT&T imposed upon the efforts of specialized carriers to enter the industry.[87] Brock and Evans note that AT&T had several advantages in the regulatory game; notably, a staff of lawyers, economists, and other experts who were already well versed in regulatory matters and who could be used to present AT&T's case before the FCC at probably little added cost to AT&T. The entrants had to assemble their regulatory experts from scratch, and if they failed to get into the industry, the investment in developing this expertise would have had little value. But it might be conjectured that, once entrenched in an industry, specialized carriers would be as prone as AT&T to employ the regulatory process as a barrier to further entry.

The foregoing observations are not necessarily meant to imply that regulating conditions and terms of access to the local network is a socially wasteful activity. Rather, it is meant to raise the caution that both the incumbent telco and its competitors can use the regulatory process to gain strategic advantages. Further, the observations would seem to suggest that the regulatory process be streamlined as much as possible, so that the regulator can focus a limited amount of resources on crucial bottlenecks to competition. We elaborate on this point at length in the section dealing with policy analysis and recommendations.

To summarize, the foregoing evaluation of contestability in broad segments of the industry suggests that the enhanced services and equipment sectors are fundamentally quite contestable, presuming that monopoly control over the local network does not lead to abuses over access conditions. The long distance segments (both voice and data) also appear to be contestable, at least in the medium to longer-run. Again, this presumes that access to the local network does not stand as a bottleneck to effective competition in the long haul sector.

There are some reassuring (at least for competition) trends towards a relaxation of the natural monopoly properties of the local network. Specifically, technologies designed to bypass the local network are proliferating. Major local bypass technologies include: local area networks (LAN's); mobile radio (including cellular) and coaxial cable utilized in cable television systems.[88] Of these technologies, the first mentioned is perhaps the most promising bypass technique for the foreseeable future. LAN's currently provide intra-facility, high-speed data communications between machines, relying heavily upon coaxial cable for distribution. The potency of LAN's as a bypass technology rests in the fact that as much as 60 percent of corporate information traffic flows inside a single building.[89] In the longer run, experts anticipate that LAN's will evolve into hybrid voice and data systems with a digital PBX at the centre and coaxial cable systems in each department. The creation of efficient LAN's in Canada would be facilitated by elimination of CRTC restrictions on the sharing of PBX capacity.

Cellular radio systems represent a major technological breakthrough in local communications capacity. The major impact is to increase substantially the capacity to exploit the available radio spectrum. As an illustration, it is anticipated that the cellular radio systems currently designated for use in Toronto will have a capacity to handle 50-60 thousand users.[90] And it is anticipated that the capacity of cellular radio systems will increase over time as the distance between cells is shrunk. While most of the calls will go from mobile units to land-based units using the local switching system, the capacity to join cellular systems to LAN's and thereby bypass the local network entirely is apparent. When combined with the potential for earth station reception of long distance messages, it is possible to imagine larger users enjoying widespread local access for both local and long-haul traffic without going through the common carriers switched network.

Another potential local bypass technology is two-way cable. In this regard, the major short-coming of cable systems as a bypass technology is the limited two-way capacity of extant systems. However, the willingness of cable companies to upgrade their installed systems would be substantially increased if the demand anticipated for two-way services such as videotex emerges as some optimistic observers have forecasted. Reductions over time in the cost of decoding equipment will also promote the growth of two-way cable.

In summary, opportunities for large business users to bypass the local network are expanding quite substantially. Some of the same bypass technologies available to large business users were also available to large apartment complexes and industrial parks.[91] Bypass opportunities for small business and residential users of the local network may be substantially enhanced by the growth of two-way cable capacity. In short, while the ubiquity inherent in the telco plant currently remains unsurpassed and unchallenged by any bypass system, the conventional view of the local network as being totally insulated from competitive alternatives is rapidly becoming an anachronism. Furthermore, policy makers should recognize and foster these alternatives, where appropriate. The decisions to build some competition into the initial provision of cellular radio services is an example of a policy initiative in this direction.

These observations about local bypass opportunities do not gainsay the notion that policy-makers must address problems created by a local "natural monopoly" for the foreseeable future; however, they do suggest that the problems may affect an increasingly small proportion of network traffic as time goes on. At the same time, long-haul and local bypass opportunities will pose an increasing threat to the industry's current rate structure. It is to this issue we now turn our attention.

Efficient Pricing for Telecommunications Services

Efficient prices may be tough of as those which maximize consumers' plus producers' surplus, or (equivalently) prices which maximize the value of output for a given cost of inputs. While this definition is somewhat abstract, the principle underlying efficient pricing is relatively straightforward: the price of a good or service should equal the marginal cost of providing that good or service, and where costs are invariant to output rates, prices should not be tied to usage rates.

Within the context of the telecommunications industry, efficient pricing calls for an access charge to cover usage insensitive costs and a variable charge (or usage-sensitive charge) equal to the marginal cost of a call.[92] The marginal cost of a telephone call will, in turn, presumably reflect factors such as distance, duration and the time-of-day the call was placed. It is in moving beyond this basic principle that disagreement becomes widespread. Before detailing the nature of these disagreements, we should briefly discuss the relevance of so-called "Ramsey prices."

Where the seller of a service enjoys a monopoly position and is subject to a rate-of-return constraint, it is possible that in setting unconstrained prices, the monopolist will exceed the rate-of-return constraint. The problem facing the regulator then becomes to establish prices that minimize the loss in consumers' surplus, while holding the monopolist to his allowable rate-of-return. These are Ramsey prices. The primary feature of Ramsey pricing rules is the requirement that prices be altered in the most inelastic market to meet the supplier's revenue requirement. The rationale behind this requirement is the notion that any given increase in price will have a smaller impact on consumer surplus, the less elastic the demand curve, all other things the same. The key implication of the Ramsey rule is an argument for imposing a substantial access charge (the least price-elastic component of telephone demand) and for substantially reducing message toll charges (the most elastic component of telephone demand).[93] But such a movement in prices would be consistent with the efficient pricing rule described earlier, since the latter also calls for explicit access charges and prices that equal (not exceed) marginal cost.

Are Current Pricing Structures Efficient?

There is widespread agreement among economists that the current pricing structure in the telecommunications industry is grossly inefficient. The inefficiencies primarily reflect charges for local service that are invariant to usage, and a failure to charge explicit prices for access to the network, and prices for message toll service that greatly exceed the marginal cost of providing that service. Using plausible estimates of elasticities of demand for different services, several estimates of these efficiency losses have been made for US telephone systems.

In one study, Wenders estimates the annual loss from the overpricing of interstate toll calls as equal to $8.7 billion, which amounts to a $112 per access line, while the annual loss from the overpricing of intrastate toll calls amounts to about $9.5 billion, or $121 per access line. On the other hand, the underpricing of residence access (assuming that the cost of providing access is about $25 per month) produces an annual loss of about $118.3 million, or $1.88 per access line. The much smaller loss associated with underpricing access is because the demand for access to the network is much less elastic than other components of demand.[94] Wenders' results illustrate the fundamental point that the main efficiency gains from rate rebalancing come from lower message toll rates. And to the extent that rate rebalancing facilitates efficient entry and dynamic efficiency gains from increased competition, Wenders' results grossly underestimate the welfare gains to rate-rebalancing.

It is tempting to apply the one-tenth rule of thumb, i.e., scale down US estimates by a factor of ten to arrive at comparable Canadian estimates, and place the comparable welfare loss from telephone cross-subsidies in Canada at around $2 billion per year. This order-of-magnitude estimate is in rough accord with Peat-Marwick's recent estimate that a 40 percent across-the-board roll rate reduction would have provided a net gain in consumer surplus of over $0.6 billion per year across Canada in 1982.[95] In fact, the gross welfare loss associated with cross-subsidies in the Canadian telephone system are likely to be greater than the "one-tenth" rule would suggest, since cross-subsidies are proportionately greater in Canada than in the US. At the same time, the risks of uneconomic entry owing to extant cross-subsidies are at least as great in Canada.

Externalities

It has been argued by some that cross-subsidization from toll to local need not imply inefficiency because of the existence of access externalities. The latter arise from the presumed value of an expanded network to potential callers. In the presence of access externalities, it would be inefficient to charge the full cost of access (presuming this cost was satisfactorily determined) to individual subscribers.[96]

The existence of access externalities is plausible although their magnitude is a matter of conjecture.[97] The point that might be made here is that some studies of the welfare losses from cross-subsidization incorporate estimates of access externalities into the analysis. For example, the aforementioned study by Wenders incorporates Perl's $4.00 per month subscriber externality into the calculation of welfare losses. In another study, Griffen demonstrates that the overall welfare consequences of rate rebalancing are highly insensitive to the magnitude of the assumed subscriber externality, since most of the welfare impact is associated with lower message toll rates.[98]

A somewhat more obscure externality-based argument has been raised in the Canadian context. The argument has to do with presumed nation-wide benefits associated with regional development. In effect, the argument holds that a relentless movement towards cost-based pricing will impose sharply higher rates on both business and residential subscribers in rural areas. As a result the economic viability of these regions will be threatened. A further presumption is that Canadians in general (assuming away free-rider problems) would willingly subsidize the continued existence of these rural areas, at least up to the full amount of the cross-subsidies going to these regions through the telephone rate structure.[99]

The data presented in Table 5 suggest that, to the extent that such subsidies exist, they benefit a minority of Canadians. Specifically, about one-third of Canada's population live in telephone exchange divisions serving fewer than 25,000 subscribers. However, the percentage of "rural" subscribers is substantially higher in Saskatchewan and the Maritime provinces. This geographical concentration of potentially affected subscribers suggests that efforts to restructure telephone rates will meet with political opposition from these regions that is out of proportion to the number of people affected.

It is, on the one hand, difficult to evaluate the regional externalities argument and, on the other hand, theoretically easy to dismiss it. Specifically, it is difficult to establish how much of the (presumed) subsidy to rural subscribers is required to offset geographical cost disadvantages, and how much constitutes "rent" to those subscribers. But beyond this, it is certainly an open question whether the majority of urban subscribers value the alleged regional externalities to the magnitude of the subsidies they provide.

It is fruitless to debate (in this paper) the social benefits of rural communities to Canadians. The point we would make, quite simply, is that there is no economic rationale for subsidizing rural economic development through the telephone pricing structure. Certainly, there is no reason to believe that the bulk of the alleged geographical externalities accrue to intensive long distance callers, the group in society that currently pays for the bulk of the cross-subsidization, both by indirectly supporting low rural access charges and by directly providing a healthy surplus to the Telecom Canada revenue settlement fund. When social benefits are broadly distributed throughout society, it is appropriate that the associated costs be broadly distributed, presumably through the fiscal system. It is quite understandable that current recipients of cross-subsidies through the telephone pricing structure will be reluctant to renegotiate a new set of cross-subsidies through the tax system. But their arguments in support of the status quo should be seen as political in nature and not founded on considerations of economic efficiency.

Distributional Considerations

Perhaps the most critical objection to rate rebalancing is a concern that the benefits will be concentrated among a small number of high-income subscribers, while the cost will be borne by a large number of relatively low income subscribers. Since politicians would be unlikely to consider a policy that improved allocative efficiency but substantially worsened the distribution of income (i.e., made it substantially less equal) to be in the social interest, the concern is certainly relevant from a policy perspective. Either the "adverse redistribution" argument must be refuted, or plans should be suggested for redistributing the anticipated increase in social surplus associated with improved allocative efficiency.

Table 5
Percent of Telephone and Inhabitants in Telephone Exchanges With Populations of 25,000 and Over – 1980

Province	Telephones	Inhabitants
Newfoundland	44.6%	30.9%
PEI	40.3	25.3
Nova Scotia	49.3	43.3
New Brunswick	43.1	32.6
Quebec	73.2	71.7
Ontario	67.8	70.9
Manitoba	68.3	62.9
Saskatchewan	51.0	38.6
Alberta	72.9	60.8
British Columbia	75.8	84.6
TOTAL	71.7	67.7

Source: Author's calculations from the data presented in Statistics Canada, *Telephone Statistic 1980*, Ottawa: Minister of Supply and Services Canada, 1982, Table 7.

Evidence on telephone usage patterns in the United States gives some indication of the potential redistributive effects of alternative pricing structures.[100] One major demographic study of telephone usage patterns was undertaken in Chicago.[101] The major findings of this study are summarized in point form:

- As income rises, the median number of local calls tends to rise, although no pair of income groups is significantly different;
- Controlling for other variables, the number of local calls is estimated to be significantly higher only for incomes of over $30,000;
- There is no significant income effect for the average duration of local calls;
- The medians of the number of suburban calls, of total suburban conversation time, and of suburban message units all rise sharply with income;
- The medians of the number of local calls and of total local conversation time are lower for the two age groups: 55 to 64 and 65 and over, as compared to the younger age groups;
- The medians of total local and suburban message units display a strong downward trend with increasing age;
- Non-toll calls are heavily concentrated near the customer's location; e.g., 94 percent of total local and suburban conversation time terminates within five miles of a customer's originating office;
- The number of toll calls, total toll conversation time, and total toll charges are all significantly higher for household with annual incomes of $20,000 or more than for those with lower incomes.

The precise distributional impact of a repricing scheme is difficult to determine since it depends, in complex ways, on a number of economic variables, including:

- the price and income elasticity of demand for access to the network, local calls and long distance service respectively;
- the distribution of use (among various classes of customers) of local exchange and long distance services;
- the responsiveness of customers to peak/off peak pricing of metered services; and
- the elasticities of supply for local and long distance service respectively.

In the absence of detailed quantitative estimates of these relationships, certain implications can be drawn from the available evidence on demographic usage patterns. One is that an increase in local service revenues offset by an equivalent increase in toll revenues will, on balance, redistribute income from lower to higher-income individuals. This result is suggested by the observation that total toll calls and toll conversation time are more sensitive to increases in income at lower income levels than are local calls and local conversation time. It is also suggested by the observation that over 90 percent of all calls made in Canada are local calls, while long distance residential calling is highly concentrated, as shown in Table 3. Furthermore, approximately 30 to 40 percent of residence customers make no long distance calls in any given month.[102] Since the poor and the elderly are not much different from the entire residential sample in this regard, rate rebalancing does raise some non-trivial concerns about vertical equity. In particular, it raises concerns about some low-income households "dropping off" the network.[103]

Some additional data relevant to the foregoing points are provided in Table 6. These data show toll and local calling patterns for different categories of residential and business subscribers to the Sask Tel network. As can be seen, the intensity of toll calling increases monotonically with income for residential customers and with the overall local telephone bill for business subscribers. The proportionate increase in local monthly residential bills across income classes is nowhere near as marked as in the case of toll bills, suggesting a regressive impact upon income distribution from simple rate-balancing schemes, at least those that affect residential subscribers directly. Although not reported in Table 6, the Sask Tel data also indicate that both rural residential and business subscribers do more toll calling than their urban counterparts, although rural local bills are disproportionately lower than urban local bills. This latter observation suggests that simple rate rebalancing approaches may, on balance, worsen the relative income positions of rural subscribers.

These are direct effects. Important indirect effects also must be considered. The latter are associated with pass-throughs of lower business telecommunications costs in the form of lower prices. The income distributive impacts of these indirect consumer benefits are unclear; however, one cannot necessarily presume that they will be income-progressive.

Implicit in concerns expressed about the distributional implications of competition in the long distance segment of the industry is the notion that such competition inevitably implies a need for increased local rates. However, if the demand for toll calls is price elastic, a decrease in average toll rates triggered by competition will lead to an increase in toll revenues. This increase, in turn, could presumably be used to subsidize local

Table 6
Usage Characteristics and Income Levels for Sask Tel Subscribers

Residential Customers
– By Income Level

	$10K & Under	$10K to $20K	$20K to $30K	$30K to $40K	Over $40K
1. Average number of toll calls per month per customer	9	10	11	13	19
2. Average toll bill per month per customer	$18.48	$22.63	$23.79	$28.64	$33.64
3. Average local bill per month per customer	$7.74	$8.72	$9.81	$10.35	$10.41

Business Customers
– By Local Telephone Bill

	Small $0-$300	Medium $300-$1000	Large $1000+
1. Average number of toll calls per month	51	238	$1,089.00
2. Average toll bill per month	$103.70	$553.12	$2,219.68
3. Average local bill per month	$51.06	$505.11	$2,215.81

Source: Memo from J.G. McGregor, AVP – Planning and Development, Sask Tel, March 15, 1984.

subscribers. While cross-subsidizing through the pricing structure implies overall economic welfare losses, it is relevant to establish whether funds for direct cross-subsidization of local subscribers would be generated by competition in the long distance segment of the industry. Price elasticities of demand therefore have important distributive as well as allocative implications.

While there is a great deal of uncertainty about the "true" price elasticities of demand for different categories of toll calls, the estimates favoured by one expert do not suggest that lower toll prices will generate a substantial revenue "surplus" from which to subsidize local subscribers. Specifically, the intervals within which it is highly likely that the "true" elasticities for intrastate and interstate minutes of toll calling lie are below unity.[104]

Local Measured Service Pricing

The potential for sharp increases in local rates associated with rate rebalancing has led telephone company executives and many policy analysts to suggest consideration of usage sensitive pricing schemes in place of flat monthly amounts for unlimited calling in a defined geographic area. One such general approach is identified in the literature as local measured service (LMS) pricing. While LMS can be shown to be desirable on grounds of allocative efficiency, its main appeal appears to be its potential for circumscribing sharp increases in local rates to about 40 percent of residential subscribers, rather than all customers if the flat monthly rate is simply increased to raise the same amount of revenue.[105]

Within the context of the current rate structure, LMS is a vehicle that can serve at least three purposes. First, it can be expected to improve allocative efficiency in the provision of local services by bringing marginal cost and marginal revenue into closer alignment. Second, LMS can improve fairness by requiring bigger users ("cost causers") to pay more for local service than those who impose lower costs on the system by their smaller volume of use. Third, LMS can provide a way of lessening the impact of rate rebalancing on the price of local exchange service.

With respect to the first point, LMS (by suppressing marginal calls whose values to callers are less than their incremental costs) can reduce the capacity costs of the local telephone network, thereby freeing up resources to produce higher-valued services. This potential efficiency gain is becoming increasingly relevant over time with increased on-line use of home computers. The efficiency gains to LMS are greatest when usage prices during peak periods equal the incremental costs of usage plus the incremental costs of measurement and billing, while usage prices during peak periods are kept at zero.[106] But, in any case, the allocative efficiency gains in the local network, per se, will be small given the inelastic demand for local service. As noted in an earlier section, the primary allocative gains come from lower long distance rates.

The best "guestimates" are that 60 percent of extant subscribers would pay the same local bill or less under an LMS system compared to a flat-rate system that raised the same amount of local revenue.[107] Furthermore, the evidence does not suggest that moving from flat-rate pricing to LMS pricing, per se, would substantially alter the distribution of income in any adverse way. Specifically, there is no basis for concluding that local calling patterns are consistently related to levels of household income. Available evidence also indicates that the elderly, the handicapped and other shut-ins make fewer social and business calls than the average telephone customer. Thus, LMS affords the elderly, the handicapped and shut-ins a cost savings, on average, over current flat rates. The main losers in a move from flat-rates to LMS pricing are families with teenaged children and businesses that rely heavily on telephone solicitation.[108] On balance, therefore, the distributive consequences of higher local rates appear more favourable under LMS than under flat-rate pricing.

Using as a criterion of fairness, the notion that those in like circumstances should receive similar treatment, there is no question but that the current flat-rate system is exceptionally unfair. The skewed distribution of local calling patterns is illustrated by Bell Canada data which show that in the case of single line residences, 20 percent of users make 47 percent of local calls, and account for 52 percent of minutes. For single line businesses, 20 percent of the lines account for slightly over 50 percent of calls and minutes.[109] Hence, it is apparent that under a flat-rate pricing structure, many individuals may be charged more than the costs they impose on the system, while others are charged less.

In sum, even in the absence of rate-rebalancing, there are compelling arguments for implementing an LMS-approach toward local service pricing. This is not to deny the existence of a host of complexities attached to such a move. One is the propensity of many local users to overestimate the frequency of their local calling. To some extent, this bias could be reduced by implementing a period of experimentation during which time local subscribers could compare their local bills under a flat-rate versus an LMS-pricing structure. But experience suggests that even before trial usage of LMS begins, a substantial educational effort may be required on the part of the telcos and the regulator.

Another issue is raised by the possibility that the costs associated with monitoring the LMS system may outweigh the associated benefits. The costs include not only those associated with actually metering local telephone usage, but also the transition costs associated with subscribers becoming familiar with new pricing patterns. The nature of these latter costs are suggested by Max Walpert, counsel for the National Anti-Poverty Organization, who argues that "the bamboozling potential increases exponentially with the number of variables that make up the billing system."[110]

The foregoing concern again underscores the need for a deliberate and careful evaluation of the LMS option before widespread implementation is undertaken. On the other hand, it is appropriate to caution against overstating the complexities associated with LMS. Outside of North America, message measurement is the rule rather than the exception. And an increasing number of jurisdictions in the US are turning to usage sensitive pricing of some form.[111] Moreover, options can be provided to accommodate the demand for a substantial degree of certainty in monthly phone bills. For example, telcos might offer subscribers the opportunity to pay a flat-rate price for unlimited local calling, where the flat-rate was presumably commensurate with the (probabilistic) costs and flat-rate users will impose on the system. Alternatively, some combination of measured service pricing with an upper-limit "cap" might be considered.

We cannot evaluate alternative LMS options in this broad overview paper. We would argue, however, that rate rebalancing is critical to a reliance upon entry-based tests of efficiency and competitive pricing in contestable markets. Furthermore, LMS pricing is a promising and, perhaps, indispensable component of a politically palatable and economically efficient rate-rebalancing effort. Hence, while local pricing schemes are conceptually separable from efforts to deregulate specific telecommunications' activities, in practice, these two aspects of telecommunications policy are likely to be inseparable.

Policy Approaches to Deregulating the Telecommunications Industry

There are two broad approaches that span the boundary of how policy-makers can deal with telecommunications services. One approach involves market-determined solutions to the critical questions:

- Who should provide output?
- What output should be provided?
- What prices should be charged?

In the unconstrained market solution, private sector decision-makers are presumably free to participate in any market they choose, with whatever combination of products they wish to supply. "Fair" competition is increased through the application of relevant features of the Combines Investigation Act.

An approach at the other end of the spectrum involves extensive regulation of structure and behaviour in the industry. In this case, resolution of the critical questions outlined above is determined largely by regulatory flat.

In between these two extremes lie a broad set of "interior" solutions characterized by varying degrees of market versus regulatory direction. We will identify this broad set of outcomes as regulated competition. The distinguishing feature of this set is that some dimensions of economic activity are governed by competitive forces, while other portions are governed by regulators. The broadest policy issue underlying this mixed set is the assignment of economic activities into the market-determined vs. regulation-determined subsets. Another broad issue concerns the "rules" of competition imposed on participants in the competitive subset.

From our earlier description, we can place the Canadian telecommunications industry in the category of regulated competition. A premise argued earlier in the paper is that actual (and potential) rivalry in contestable markets offers Canadians the best guarantee of efficient economic performance. We, therefore, consider the critical issue facing policy-makers to be whether some or all telecommunications services should be moved outside the purview of the regulator and into an (unregulated) marketplace.

Given a tentative decision to move towards a deregulated industry structure, a corollary issue is how to move currently regulated services into the set of market-determined activities. This includes a number of related considerations:

- Should contraints be placed on who can compete in market-oriented sectors?
- Should constraints be placed on the behaviour of one or more competitive participants?
- How quickly should the transition from regulated to competitive governance be effected?

It is obvious that these issues are both complex and subject to rapidly changing influences. It is therefore impossible to treat them in a comprehensive fashion in this paper. For the most part, therefore, we treat the relevant issues as generic problems, while avoiding the specific idiosyncrasies of individual telecommunication product or service offerings. Nevertheless, policy options will be explicitly considered in the cases of interexchange public service, enhanced services, equipment, and local service.

Generic Policy Approaches

One broad policy approach is to allow open entry into all telecommunications sectors; allow product and service offerings to be determined completely by private-sector participants, and allow prices to be set completely in the marketplace. This might be considered the epitome of the deregulation solution.

The approach has some obvious policy concerns. One is the potential for inefficient entry owing to cross-subsidies in the current rate structure. Presumably, this concern would be mitigated by a successful effort to rebalance local and long distance rates. Second is the potential for existing carriers to predate in certain sectors with monopoly profits earned in other segments of the industry. As noted in an earlier section, this concern is baseless where markets are contestable. We also expressed the judgement that, in the long run, only the local network appeared to raise serious concerns about contestability, and even in that segment, long-run substitution possibilities are emerging. Hence, the primary issue raised is assuring equal access to the local switched network.

With respect to pricing freedom, an obvious concern is that until deregulated sectors achieve an acceptably contestable status, the potential exists for non-competitive pricing. The dominant concern again involves the local network, although (over a transition period) concerns are also raised about non-competitive pricing in the market for message toll services. As well, during the transition period, the potential for predatory cross-subsidization cannot be dismissed out-of-hand. These concerns suggest the need for some provisional structure to evaluate prices in the major segments of the industry.

A second broad policy approach is to allow open entry in some sectors, while restricing entry in other sectors. In a corresponding fashion, the prices for some services would be set in the market, while conventional regulation would be applied in price-setting for other services. Ideally, entry would be allowed as long as it did not involve significant potential sacrifices of economies of scale and/or scope, or if it did not threaten the long-run viability of competition. Ideally, prices would be regulated only when unregulated prices would be anti-competitive.

This second approach can be seen as a limiting case of regulated competition. As such, it has some obvious potential problems. For example, it requires increasingly sophisticated assessments of technological conditions in various segments of the industry, as well as the contestability of those segments. In this respect, it poses a risk of excessive rigidity of entry conditions and of prices owing to regulatory lag and/or to regulatory capture by interest groups. It also admits the possibility of rapidly increasing costs of regulation as technological change opens new opportunities for entry.

The regulatory burden implied under the second broad policy approach can be mitigated, to some extent, by amending certain structural conditions and behavioural practices in the industry. One such amendment would be to require separate subsidiaries for common carriers. Janisch talks about two types of structural separation: "maximum" separation and "maximal" separation.[112] The former is essentially an extension of accounting techniques which are aimed at identifying, allocating, and partitioning costs and revenues involved in providing various telecommunications products and services. This approach essentially enhances the visibility and auditability of intracorporate transactions. Maximal separation goes further than accounting separation to include:

- Separate directors, officers, and operating personnel among corporate entities;
- Separate physical facilities and space;
- Restrictions on the rotation of officers and operating personnel among corporate entities;
- Separation of basic operating functions such as marketing, advertising, applied research and development, procurement and manufacturing; and
- Provision of administrative services the the parent (or other corporate affiliate) to the separate subsidiaries on a fully cost compensatory, full auditable basis.[113]

In fact, the two forms of separation are complementary, in that maximal separation should make accounting-based monitoring more effective, but at the potential sacrifice of economies of scope. It will also impose increased bureaucratic overhead related to the need for a greater number of managers and other "quasi-fixed" inputs. Presuming that there are at least modest economies of scale in the relevant activities, an implication of maximal separation is higher than real costs of services to telephone subscribers.

Divestment of monopoly from competitive services also raises a concern about the potential sacrifice of economies of scope. Non-trivial transactions costs will be associated with any divestment of "monopoly" services from "competitive" services. Less demonstrable, but perhaps no less important, divestment may simply be too radical a solution for Canadian policy-makers.

The use of accounting data can serve two functions: to evaluate the "fairness" of individual prices and to ensure overall cost coverage with provision for an allowable rate of return. While it is impossible to summarize the extensive amount of evidence and testimony presented to the CRTC during the Cost Inquiry, one cannot read the evidence without being enormously impressed by the difficulty any cost separation techniques will encounter in evaluating the "fairness" of any individual tariff, or set of tariffs. This is especially true in the case of new products and services, where forecasting future revenues will be required. Furthermore, the substantial portion of costs that have a "variable common" nature will be extremely difficult to apportion to individual products or services in a meaningful way.

Pessimism about the utility of relying upon cost accounting procedures to monitor the fairness of competitive prices is reinforced by the broad consensus among economists that the courts have been largely unsuccessful in identifying predation, and that telecommunications regulators will have no better time in identifying predation through the examination of accounting records.[114] Combined with an earlier assessment that traditional price predation is unlikely to characterize the equipment, enhanced services and (prospectively) the long distance toll segments of the industry, there are compelling arguments in favour of dispensing with the detailed cost-accounting approach to regulating competitive prices, especially given the extensive costs involved in developing the requisite accounting systems.

A third generic approach is to disallow unregulated entry or market-determined prices in any segment of the industry. Entry in all segments would be controlled by the regulator, who might allow a limited number of entrants into certain segments of the industry. Tariff-schedules and conditions of service would be established by the regulator and set to enable the regulated firm(s) to earn an acceptable overall rate-of-return, consistent with other regulatory objectives. We would consider this approach to approximate "full regulation".

Again, there are obvious problems with this alternative. In particular, it may largely obviate the sought-after benefits of increased competition:

- Controlled entry is unlikely to facilitate "true" tests of the efficiency of incumbent firms, or of potential entrants. More specifically, the regulatory arena is bound to be much less effective than the market in conducting experiments to establish more efficient ways to provide telecommunications' services.
- Controlled entry discourages investment in innovation by potential entrants, since they face a substantial risk that entry will be denied. Furthermore, arms-length transfers of innovations to incumbent firms are unlikely to fully capture the benefits of those innovations. Other problems may also be expected:
- This policy still involves the regulator in a massive amount of detailed decision-making about costing and pricing. In addition, the regulator will face a substantially increased workload related to applications for entry by firms outside the industry, and applications by incumbents to block entry.
- If control over entry is to be comprehensive and relatively effective, e.g., the prevention of uneconomic bypass or the diversion of telecommunications traffic to carriers in the United States, the "policing" costs could be quite substantial, especially if prices set by the regulator embody cross-subsidies that create selective incentives to enter or bypass. And, if the regulator, at all points in time, attempts to set prices that do not encourage entry of a selective "cream-skimming" nature, it is not clear that control over entry has any practical relevance; i.e., would the rate of entry be any different than that established in the marketplace?
- Control over entry and the comprehensive regulation of competitive behaviour perpetuates uncertainty about whether and how the rules-of-the-game will be changed in the future. All else constant, this uncertainty will promote inefficient patterns of behaviour and performance.

Assessing the Alternatives

Obviously, a rigorous adjudication of the merits of these alternative generic policy approaches requires comprehensive information on their social costs and benefits. While some relevant data are available bearing on these issues, a good deal of residual uncertainty about specific costs and benefits will inevitably exist. Furthermore, as noted by Judge Greene, the social consequences of any public policy will depend heavily upon how it is implemented. This observation suggests that the criteria for effective implementation of policy be accorded some prominence in the policy evaluation exercise.

Policy Criteria

A politically acceptable transition to a less regulated industrial structure is required if inefficiencies created by the transition mechanism itself are not to consume the bulk of the efficiency gains to be achieved by deregulation. Magat notes that the following characteristics of deregulation affect the ease of transition:

- The less the market structure is changed by deregulation, the easier the transition is to accomplish;
- Transitions are easier to design where the cross-subsidies inherent in the regulations to be eliminated are least pervasive;
- Managing a transition is easier if the parties hurt by deregulation are either politically weak or can be placated by various forms of compensation; and
- The transition is easier the more competitive or "contestable" will be the deregulated industry.[115]

Magat's criteria suggest that the transition toward a less regulated Canadian telecommunications industry might be quite difficult under current industry conditions. In particular, there are substantial and long-standing cross-subsidies embedded in the industry's rate structure. Any meaningful attempt at deregulating the industry will undoubtedly threaten existing cross-subsidies, especially those going from message toll service to residential local service. It is apparent from both the US experience, as well as other regulatory proceedings in Canada, that the issue of "rate-rebalancing" will inevitably dominate other concerns related to telecommunications deregulation. Regardless of the rebalancing scheme chosen, it is clear that a substantial number of subscribers will face higher telephone bills, and that their dissatisfaction will not be ignored by politicians—nor by the regulator.

Given the reality that distributional considerations cannot be separated from allocative solutions in the case of the telecommunications industry, a deregulation strategy must explicitly encompass a politically acceptable compensation scheme. While there are numerous versions of compensation schemes that might be considered, there is one critical distinguishing feature that has overriding importance; that is, should the requisite revenues be obtained through the tariff structure or should they be raised through a broader tax levy? The economists' position is relatively straightforward: to the greatest extent possible, revenues should be raised from taxes that do not distort subscriber incentives to use alternative telecommunications services. It is less obvious what specific tax mechanism should be used. In part, the choice will depend upon the desired levels of revenues, which (in turn) will depend upon the policy-makers' assessment of the subscriber groups that merit subsidies and the magnitude of those subsidies. On a preliminary basis, however, an "equity" argument can be made for imposing a surtax on large corporations, since the latter will be substantial beneficiaries of a rebalanced rate structure.

In like manner, the disposition of subsidies should be independent of the pricing structure. Thus, worthy subscribers might be given direct subsidies in the form of "telephone stamps" or indirect subsidies through the tax structure, such as a telephone access charge tax exemption. Obviously, for poor families that pay no taxes, a direct grant of some sort is recommended. But the main point is that redistribution should be the concern of government and not the common carriers. In practice, the regulator may insist upon "lifeline" rates to ensure universal access. We would consider this a "second-best" subsidy structure, since there is a strong possibility that many individuals who are not in need of subsidy will take advantage of lifeline rates.

Considerations of Timing and Scope of Deregulation

There are several other dimensions of the deregulation exercise that pose relevant policy concerns, including the speed at which overall deregulation is to proceed.

Speed of Deregulation

There are two broad views on this issue. One is offered by Alred Kahn:

> Make the transition rapid; move quickly on as broad a front as possible to permit all carriers to slough off the restrictions that limit their operating flexibility, to leave the markets they find it uneconomic to serve, to enter the markets they want to enter.[116]

Kahn acknowledges that he initially held the view that a move to deregulation should be done quite cautiously, examining the results every step of the way, in the hope of minimizing the disruptions and distortions of the transition. His experience with airline deregulation, among other things, led him to a conviction that rapid deregulation is preferable.

Gaskins and Voytko suggest that rapid transitions may be desirable in three instances:

- when a rapid movement to the market will not violently distress parties;
- when a satisfactory side payment is available; and
- when inefficiencies from regulation become intolerable.[117]

In considering Gaskins' and Voytko's criteria against the background of the Canadian telecommunications industry, there are some compelling considerations for gradualism in implementing policy. Most notably, rapid deregulation will lead to sharp adjustments in prices, in some cases upward. Furthermore, there is no readily apparent method of side payment that can be quickly and easily implemented to accommodate a quick transition to open entry and unregulated prices.

In the absence of detailed, practical and implementable plans to deal with the major price adjustments that could result from a competition-driven movement towards cost-based pricing, rapid deregulation in Canada would face even greater political and economic distress than is characterizing telecommunications deregulation in the United States. However, gradualism should not be associated with policy indecision. It is important that a well-established timetable be set that identifies specific dates at which major regulatory reforms become effective. Opportunities for policy reversals should exist, but they should be exercised only under pre-specified conditions; e.g., a critical threshold of local subscribers "fall off" the network. The idea here is to reduce uncertainty about whether movement towards a competitive environment will be maintained, thereby encouraging firms to proceed with long-lived investments related to entry and expansion.

The Scope of Deregulation

Another important implementation issue is the scope and sequencing of deregulation. That is, should all segments of the industry be deregulated simultaneously or should there be a well-established hierarchy in terms of timing, as well as magnitude of deregulation?

On the one hand, Thompson and Jones have argued that the bigger the policy change, the greater the public attention and the more likely it becomes that the public interest will prevail over private interests.[118] On the other hand, a proper sequencing of deregulation should reduce the opportunity for any market power resulting from years of anti-competitive regulation to be exploited in a transition period during which substantial pricing flexibility is permitted.[119]

As discussed in an earlier section of this report, the degree to which markets are contestable varies across segments of the industry. For example, it can be plausibly argued that the equipment and enhanced services segments of the industry are potentially quite competitive. An issue arises as to whether certain changes, e.g., maximal separation, should be imposed to ensure contestability, and we will deal with this and other related issues below. For the present, we would merely assert that these segments are quite promising candidates for early and comprehensive deregulation.

The contestability of long distance services, including private line and interexchange services, is more problematic. Certainly, given extant restrictions on leasing and reselling transmission facilities, including the competitive restrictions inherent in the Telesat Canada arrangement, it is difficult to be sanguine about the potential for anti-competitive abuses in this segment of the industry. Nevertheless, we would argue (as in an earlier section) that with the removal of regulatory restrictions on who can supply long distance communication services and in what ways those services can be supplied, this segment of the industry would, in time, become contestable, both in voice and data and in private-line and message toll services. Indeed, if Canadian policy-makers were willing to relax nationalistic barriers against foreign-owned specialized carriers, e.g., MCI, the long distance segment of the industry would pose no significant long-run concerns about its competitive structure.[120]

An implication of our preceding discussion is that restoring pricing, conditions of service and entry and exit decision-making to the marketplace could proceed apace in most parts of the industry, with the exception, perhaps, of switched long distance services. The most troublesome sector is the local network. Here most observers agree that the cost to replicate the local switched network is large in absolute amount, and (furthermore) that a substantial portion of the required investment might not be fungible, i.e., capable of liquidation in the event of an exit decision. While prospects exist for substitution possibilities to the local network, the prospects for contestability in the local sector are much less promising in the foreseeable future than for other broad sectors.

A Preliminary Assessment of Generic Policy Approaches

It should be obvious from the preceding discussion that all relevant policy approaches are subject to serious qualifications and shortcomings. Moreover, the rapid economic and technological changes impacting the industry render any policy subject to unanticipated obsolescence. Against this background, any policy choice must be a "judgment call", and efforts to adjudicate among the policy alternatives based strictly on rigorous benefit-cost analysis will quickly experience diminishing returns.

With this disclaimer as preamble, we would argue for the implementation of generic policies two and three, where these policy approaches are not contradictory. More specifically, we are led by the available evidence to conclude that while the equipment and enhanced services sectors are tolerably contestable, the long distance and local segments pose sufficient competitive concerns as to require continued regulation of prices, at least for the foreseeable future. In addition, until an acceptable approach towards rate rebalancing is identified and implemented, open entry poses a substantive concern about uneconomic entry.

Nevertheless, our long-run policy objective would be to achieve an environment in which entry and pricing decisions affecting most segments of the industry including the long-haul segment were made by private decision makers subject to rules of competition that were enforced under a revitalized Combines Investigation Act. In our view, policy-makers should work toward promoting that happy environment while allowing a phasing-in of competition in all segments of the industry.

In more specific terms, we would support a policy that – in the near future – deregulated pricing in the terminal equipment and enhanced services sectors. Further, we applaud the apparent preference of the government to allow price competition in the provision of cellular radio services. Concerns about non-competitive pricing in these sectors tend to centre on possible predation by regulated monopoly carriers. For reasons outlined in earlier sections of this paper, we are extremely skeptical about the incentives that regulated carriers allegedly have to price predate in competitive sectors. This skepticism is heightened by the relative vigor with which regulators have held down regulated telephone rates over the past few years. Experience in non-regulated industries, which are less complex than the telecommunications industry, offers no optimism about the ability of regulators (or the courts) to identify anti-social predation.

Nevertheless, some accounting procedure might be invoked to provide assurance to non-telco competitors that egregious manifestations of predatory pricing will be dealt with. This could involve setting "floor" prices for specific equipment and services provided by telcos based on acceptable costing procedures. Companies wishing to price below the floor would be required to defend their target prices as being non-predatory. The floor could be adjusted up or down to reflect changes in underlying cost conditions in the industry. The need for the floor-pricing arrangement would presumably be eliminated as and when the theoretical potential for cross-subsidy from non-competitive to competitive sectors became of minor concern; that is, as the long-haul sector became contestable and as local bypass opportunities began to proliferate.

Some brief justification might be offered for failing to recommend "maximal" separation of common carrier subsidiaries that participate in competitive sectors. The simple rationale is that this safeguard could prove excessively costly for the risks involved given the existence of economies of scale in various overhead functions of the firm, such as marketing and advertising, and given the existence of potential economies of scope across regulated and competitive activities. As well, imposing delays on the introduction of new services by common carriers until rival firms are capable of offering similar services may inflict substantial costs on the economy, especially if the policy discouraged innovation on the part of the common carrier.

Specific entry and pricing policies apropos long distance services are especially problematic given the currently limited but not insignificant potential contestability of that segment. Specifically, there is scope (in the short-run) for some degree of competition between Telecom Canada members and CNCP in both MTS and private line services. One can also imagine other Canadian-owned firms, including transportation companies such as BC Rail and resource companies such as Nova, providing both private line service and switched service through microwave and satellite transmissions in conjunction with interconnected PBX machines. Indeed, with competitive access to satellite transponders, a number of Canadian communication companies such as Torstar and Maclean-Hunter might find it profitable to provide satellite voice and data services, especially if leasing and resale of excess capacity was allowed. Given the development of sufficient actual and potential competition in the long-haul sector, the required focus of regulation might be limited to assuring that competitive carriers have equal access to the local network.

As a practical matter, the quick abandonment of regulatory controls on entry and price-setting in the long distance segment of the industry is quixotic. For one thing, the US experience suggests that the elasticity of alternative supply for long-haul services increases over time, but at a fairly deliberate pace. Thus, throwing the long-haul segment of the Canadian industry open to competition will not quickly transform the industry into one devoid of anti-competitive concerns, especially if – as seems likely – policy-makers choose to perpetuate Canadian-ownership requirements for common-carriage.

Another, perhaps more fundamental concern, is the problem posed by extant cross-subsidies in the system. As long as long-haul rates embody price-cost markups designed to subsidize other services, entry into the long distance segment may be attractive even to firms that do not necessarily enjoy a cost advantage relative to the common carrier. As noted earlier in this report, this uneconomic entry is of particular concern in the presence of economies of scale and scope. Our review of the available evidence suggested that there are economies of scale in long distance service, although their magnitude is uncertain. Thus, policy-makers should be concerned about encouraging uneconomic entry, not only to obviate inefficiencies but also to forestall a future situation in which the regulator is obliged to protect inefficient "cream-skimmers" once they are made to bear their proportionate share of extant cross-subsidies.

In effect, open entry is not advisable given the unbalanced structure of local and long distance rates. Since any move toward comprehensive rate restructuring will undoubtedly be a protracted process, it will be some time before long distance services in Canada will be reasonably classified as contestable. The relevant issue then becomes whether any entry over and above CNCP's and BC Rail's position in the private line market should be allowed and what – if any – pricing flexibility should be allowed for services provided by two or more competitors.

In principle, a selective entry might be allowed providing the entrant bore a "fair" share of the associated cross-subsidy burden. In practice, determination of what constitutes a fair share of the burden will be difficult and probably fraught with contention. Among other reasons, entry will take place on selected routes, while (under the current pricing structure) rate-averaging occurs over the entire network. Thus, the entrant will argue that the price-cost markups on the routes selected are low, while the incumbent will argue that they are high. Given a non-trivial component of joint and common costs across all long-haul routes, estimates of what the "true" subsidy is on any one route will inevitably be arbitrary.

In light of all the foregoing qualifications, it is difficult to see substantial value in allowing controlled entry into the message toll sector prior to rate-rebalancing, including the abandonment of route averaging in favour of route pricing. A claim might be made that limited entry will help develop a "culture" of competition, whereby both suppliers and customers would begin to fashion both strategic and tactical plans in a competitive framework. The US experience suggests that there are many "kinks" to iron out in moving towards competition in message toll services. Controlled entry could allow an early start at smoothing out technical and marketing difficulties associated with long distance competition. Whether these benefits are worth the associated costs of uneconomic entry is an open question.

In this regard, the Peat Marwick study referenced above concludes that the benefits to subscribers from rate rebalancing are generally higher than the benefits of comparable rate changes brought about by competitive entry. The basic reason is that overall costs are assumed to increase with the transfer of marginal calls from existing common carriers to competitive carriers. Of course, this conclusion would need to be modified if, as a result of competition, the entire cost function of existing telephone companies was reduced.[121]

In our view, there is no question that entry into the long distance segment is desirable given rate rebalancing. Ideally, the latter would precede the former, thereby mitigating risks of uneconomic entry. On the other hand, it must be recognized that – without the spur of competition, rate rebalancing may be a drawn out and inefficient process. By sharply constraining the time period over which rebalancing can take place, such transition costs might be minimized. Given a finite and relatively short time-frame for rate rebalancing, we would chose the option of allowing existing carriers to move prices closer to costs before throwing the industry open to entry. Clearly, Canada should try to avoid the current US experience in which entry is eroding long distance premiums, while local subsidies are being perpetuated in fairly haphazard fashion.

Under any entry scenario, in the short-run there will be concerns about non-competitive pricing in the long distance market. The potential for bypass puts a lid on the premiums that can be extracted from large business customers in long distance rates. For these customers, unregulated rates might be contemplated, even in the early stages of deregulation. If some "safety" features are felt desirable, an unregulated price band or zone might be created. Carrier's prices above or below the allowable band would need approval by the regulator before being instituted. With increasing contestability over time, the band could be expanded, as well as implemented in other markets for long distance services, including the residential market.

The removal of restrictions on reselling and leasing would promote contestability in both private line and message toll service. One single important potential contributant to a contestable long haul segment would be the divestment of Telecom Canada's ownership of Telesat and a liberalization of Telesat's freedom to price competively with the terrestrial carriers. The enhanced availability of radio spectra for cellular radio and for specialty FM channels would increase competition in both one-way and two-way local communication services.

The final sector to briefly consider in this broad assessment of deregulation strategies is local service. The question of entry into the conventional network is obviously moot for reasons that have been amply developed by this point. Entry into ancillary local services, e.g., mobile paging, cellular radio and so forth, is already a component of public policy, albeit in a controlled fashion. The more relevant issue hinges around terms and procedures for accessing the local network by firms providing competitive long distance and enhanced services. Given that the substantial monopoly properties of the local network will not be quickly eroded, the regulator will have a role to play in assessing local prices and conditions of access for the foreseeable future.

But what should be emphasized is that the regulator's long-run role in this sector is also closely tied to resolution of the rate-rebalancing issue. More specifically, the access charge issue as it affects specialized common carriers is at least partially complicated by the cross-subsidy constraint from toll to local. Further, it can be argued that the emergence of viable alternatives to the common carrier local network will be stimulated (perhaps quite vigorously) by higher local rates.

In reviewing the overall environment surrounding policies toward regulation, one is struck by the prominence of the rate rebalancing issue. Indeed, given that the salutory effects of actual and potential entry on an industry's performance ultimately underlie the thrust towards deregulation, successful deregulation is seen to hinge, in large measure, on the "power" of entry-based tests of efficiency. The latter, in turn, is seriously compromised by the existence of "uneconomic" cross-subsidies in the system.

Recently, Bell Canada filed a rate-rebalancing proposal. In their proposal, rates would be rebalanced over a five year period. Under specific assumptions about costs and usage patterns, Bell estimates that the cumulative overall increases to Primary Exchange Individual Service rates would range between $11.60 and $20.20 per line, per month. Cumulative decreases in message toll rates would range between 50 and 70 percent. With implementation of the proposed rate changes, most subscribers having long distance telephone bills (excluding overseas calling), in 1984 terms, in excess of approximately $30 per line per month would have lower overall telephone bills, assuming no changes to calling patterns or volumes.[122]

The Bell Canada proposal illustrates well the policy dilemma underlying the rate-rebalancing issue. Specifically, while overall economic efficiency will increase, the direct beneficiaries are a relatively concentrated group. Specifically, Bell Canada estimates that at the end of the rebalancing period, 15 percent of residential subscribers will experience either no change or reduced overall monthly bills as a result of rebalancing. The benefits to business subscribers are somewhat more diffused: 42 percent are expected to realize either no change or reduced overall monthly bills as a result of rate rebalancing.[123]

It is, therefore, an urgent priority in formulating telecommunications policy to address the issue of efficient pricing in the industry. Policymakers must consider what a subsidy-free pricing regime might look like in the telecommunications industry and how a transition from the current pricing regime to a more efficient one might take place. With a resolution of these issues, most other economic issues related to deregulating the industry would fall neatly into place.

Notes

1. There is general consensus on the critical nature of these two broad issues. See, for example, M. Prentis, "Monopoly, Competition and Regulation: Developments in the Canadian Telecommunications Industry", in Organization for Economic Cooperation and Development, *Microelectronics, Productivity and Employment*, Paris: OECD, 1981, pp. 146-152.

2. The sustainability of a natural policy is concerned with whether a set of prices exists that will prevent entry. Sustainability may be jeopardized in various ways by regulatory policies. We shall elaborate on this concern in a later section.

3. For an overview of this issue in a policy context, see Almarin Phillips, "The Impossibility of Competition in Telecommunications: Public Policy Gone Awry", in Michael Crew (ed.), *Regulatory Reform and Public Utilities*, Lexington: D.C. Heath, 1982, pp. 7-33.

4. An extensive treatment of this issue is provided in Leland L. Johnson, *Competition and Cross-Subsidization in the Telephone Industry*, Rand Corporation Report, R-2976-RC/NSF, December, 1982, mimeo.

5. An overview of the RTPC's inquiry into the Bell-Northern link is provided in Steven Globerman, "Markets, Hierarchies and Innovation", *Journal of Economic Issues*, Vol. XIV, No. 4, December, 1980, pp. 977-999.

6. See Consultative Committee on the Implications of Telecommunications for Canadian Sovereignty (The Clyne Committee), *Telecommunications and Canada*, Hull, Quebec: Minister of Supply and Services Canada, 1979.

7. This point was stressed to the author by several readers of an earlier draft.

8. These concerns are extensively discussed in Submission by CNCP Telecommunications (with the assistance of Carl E. Beigie) to the Royal Commission on the Economic Union and Development Prospects for Canada,

Telecommunications: A Core Component of Economic Growth, Toronto: mimeo, October 31, 1983.

9. For an elaboration of this point, see Evidence of W.H.R. Smith in Memoranda of Evidence of the New Brunswick Telephone Company Limited in the Matter of a Hearing to Review Issues Relating to Interconnection in the Telecommunications Industry in New Brunswick, The Board of Commissioners of Public Utilities of New Brunswick, April, 1984, pp. 54-56.

10. A request from CNCP to permit interconnection with the public, switched network for message toll service was heard by the CRTC in the Fall of 1984. After the writing of this paper, the regulator made a decision to deny CNCP's request. See CRTC Telecom Decision 85-19.

11. An extensive discussion of the regulatory environment in Canada is provided in Woodrow and Woodside's study in this volume.

12. In offering this comparison we are not necessarily suggesting that the US structure is appropriate for Canada. Nevertheless, given a substantial overlap of policy concerns, the comparison offers a useful background perspective.

13. See *Telecommunications in Transition: The Status of Competition in the Telecommunications Industry*, a report by the Majority Staff of the Subcommitee on Telecommunications, Consumer Protection and Finance of the Committee on Energy and Commerce, US House of Representatives, Washington: US Government Printing Office, 1981, pp. 92-93.

14. Ibid., p. 105.

15. See "Access Charge Issues Unresolved", in *Industry Surveys: Telecommunications*, February 16, 1984, pp. T15-23.

16. A description of how the Bell System breakup is affecting the provision of local telephone service in the US can be

found in "Culture Shock is Shaking the Bell System," *Business Week*, September 26, 1983, pp. 112-118.

17. See Jonathan Chevreau, "Bell Threatens to Disconnect Some CNCP Users," *The Globe and Mail*, April 16, 1983, B16. At the aforementioned interexchange hearing, BC Railroad sought CRTC permission to interconnect with BC Tel.

18. A description of the non-Bell telcos providing local service in the US can be found in *Telecommunications in Transition*, op. cit., p. 208. A recent review and summary of the Modified Final Judgment is provided in Almarin Phillips, "Regulatory and Interfirm Organizational Burdens in the Telecommunications' Sectors," *Columbia Journal of World Business*, Vol. 52, Spring, 1983, pp. 46-52.

19. Less than 10 percent of the telephone systems in Canada account for over 95 percent of the country's telephone activity. See Statistics Canada, *Telephone Statistics 1981*, Ottawa: Minister of Supply and Services Canada, 1983, p. 6.

20. See Statistics Canada, op. cit., pp. 28-29. These calculations assume that all revenues assigned to Quebec and British Columbia are attributable to Bell Canada and BC Tel, respectively. This attribution obviously leads to an overestimate of Bell Canada's revenue share. However, the orders of magnitude are meaningful. More complete data are reported in Woodrow and Woodside's paper in this volume.

21. See Jonathan Chevreau, "A Transition Period is Looming for Interconnects, NBI Predicts," *The Globe and Mail*, June 15, 1984, B14.

22. *Ibid.* In a later section, we will qualify the relevance of market share estimates as an index of an industry's competitiveness.

23. See Lawson A.W. Hunter's paper "An Agenda for Telecommunications Policy Change", in this volume. Recent changes allow Telesat to market its services directly to broadcasters. A prospective change to Telesat's

connecting agreement with Telecom Canada will allow Telesat to market directly to non-broadcasters as well.

24. See J. Fred Weston and Clement G. Krause, "Competition in the Telecommunications and Information Services Markets," in Attachments and Appendices to Comments of American Telephone and Telegraph Company, CC Docket No. 83=1147, before the Federal Communications Commission, Washington, DC, April 2, 1984, pp. 24-25.

25. This definition of basic and enhanced services is provided in K.D.A. Morrison, "Comments of BC Telephone Company", submitted to the Canadian Radio-Television and Telecommunications Commission pursuant to CRTC Telecom Public Notice, 1983-72, February 6, 1984, p. 9. Morrison suggests a category: "convergent information" services to cover services which have become mixed to the degree that no single function is primary, e.g., Videotex.

26. These points of concern were identified in a discussion between the author and Alan Walter of Bell Canada. The CRTC, in a recent decision, said it would continue to regulate enhanced services provided by the telephone companies and will allow unregulated companies that sell such services to use the phone companies' lines. The CRTC also affirmed the rule that a telephone company must separate control of a message's content from carriage. See Lawrence Surtees, "CRTC to Maintain Control of Enhanced Phone Uses," *The Globe and Mail*, July 13, 1984, B1.

27. The seminal article in this literature is William J. Baumol, "On the Proper Cost Tests for Natural Monopoly in a Multiproduct Industry," *American Economic Review*, December 1977, pp. 809-822. A recently published study proposes a test for subadditivity within a restricted range of output. Applying this test to the Bell System using 1947-77 time-series data, the authors reject the hypotheses that the Bell System's cost function is subadditive at the output levels produced between 1958-77. See David S. Evans and James Heckman, "A Test for Subadditivity of the Cost Function with an Application to the Bell System", *The American Economic Review*, Vol. 74, No. 4, September 1984, pp. 615-623.

28. Detailed reviews of individual studies may be found in F. Kiss, S. Karabadzian and B.J. Lefebvre, "Economics of Scale and Scope in Bell Canada," in Leon Courville, Alain De Fontenay and Rodney Dobell, *Economic Analysis of Telecommunications*, Amsterdam: Elsevier Science Publishers, 1983, pp. 55-84 and W.T. Stanbury, "Notes of the Future of Telecommunications in Canada," University of British Columbia, March, 1983, mimeo.

29. Melvyn Fuss and Leonard Waverman, "The Regulation of Telecommunications in Canada," Technical Report No. 7, Ottawa: Economic Council of Canada, March, 1981.

30. *Ibid.*, p. 125. Kiss, *et al.*, *op. cit.*, note that their efforts to estimate the degree of output-specific economies of scale failed in all models.

31. H.E. English, "Canadian Telecommunications: Problems and Policies," in H.E. English (ed.), *Telecommunications for Canada*, Toronto: Methuen, 1973, p. 28.

32. Carl Beigie, "An Economic Framework for Policy Action in Canadian Telecommunications," in English, *ibid.*, p. 70.

33. John R. Meyer, *et al.*, *The Economics of Competition in the Telecommunications Industry*, Cambridge, Mass.: Oelgeschlager, Gunn and Hain Publishers, Inc., 1980, p. 135.

34. See Kiss, *et al.*, *op. cit.*, pp. 74-75. On the other hand, they also reference several studies which indicate either that scale elasticities are linerarly homogeneous or that they declined after 1964.

35. Phillips, note 3, p. 13.

36. Formally, if $C_1(X_1,0) + C_2(0,X_2)$ is greater than $C(X_1,X_2)$, the production of goods X_1 and X_2 is subject to strong economies of scope.

37. In a recent contribution, Spence questions whether economies of scope can reasonably be anticipated if firm-level economies of scale are mild or non-existent. See Michael Spence, "Reviewing Contestable Markets and the

Theory of Industry Structure," *Journal of Economic Literature*, Vol. XXI, 1983, pp. 981-990.

38. An eminently readable description of the sustainability issue is provided in Evidence of Dr. Ronald K. House in Memoranda of Evidence of the New Brunswick Telephone Company Limited, pp. 51-61.

39. Melvyn Fuss, *A Survey of Recent Results in the Analysis of Production Conditions in Telecommunications*, Institute for Policy Analysis, University of Toronto, Working Paper Number 8120, July, 1981, pp. 1621.

40. *See ibid.* and Kiss, *et al.*, *op. cit.*

41. For one example, see Vinson Snowberger, "Sustainability Theory: Its Implications for Governmental Preservation of a Regulated Monopoly," *Quarterly Review of Economics and Business*, Vol. 18, Winter, 1978, pp. 81-89.

42. See, for example, Phillips, note 3, p. 11.

43. The DMS family of switching machines marketed by Northern Telecom is an illustration of how the concept of digital switching was incorporated in equipment designed to provide both local and long distance services.

44. See note 8, p. 68. For a more extensive discussion of cost complementarities in telecommunications R&D, see Globerman, *op. cit.*

45. See Beigie, *op. cit.*, note 8.

46. These hypotheses are reviewed in Steven Globerman and James Diodati, "Market Structure, Internal Organization, and R&D Performance in the Telecommunications Industry," *The Quarterly Review of Economics and Business*, Vol. 20, Winter, 1980, pp. 70-85.

47. A review of this literature can be found in Steven Globerman, "Market Structure and Innovation", *The Antitrust Bulletin*, Vol. XXVIII, No. 4, Winter 1983, pp. 941-959.

48. See Raphael Kaplinsky, "Firm Size and Technological Change in a Dynamic Context," *The Journal of Industrial Economics*, Vol. XXXII, September, 1983, pp. 39-59.

49. M. Denny, A. De Fontenay and M. Werner, "Comparing the Efficiency of Firms: Canadian Telecommunications Companies," in Leon Courville, et al., *op. cit.*, pp. 115-130.

50. See, for example, the Evidence of Donald Armstrong in Submission by CNCP Telecommunications, *op. cit.*

51. Alfred E. Kahn, *The Economics of Regulation: Principles and Institutions*, Vol. 2, New York: John Wiley and Sons, Inc., 1971, pp. 223-235.

52. A seminal treatment of the "excessive entry" argument is found in Carl Von Weizsacher, *Barriers to Entry: A Theoretical Treatment*, New York and Berlin: Springer, 1980.

53. On this point, see Lionel Kalish, Henry J. Cassidy and Jerry Hartzog, "Potential Competition: The Probability of Entry with Mutually Aware Potential Entrants," *Southern Economic Journal*, Vol. 44, No. 3, January, 1978, pp. 542-555.

54. A concise statement of this argument can be found in J.A. Harvey, *Canadian Telecommunications Policy and Regulation*, address to the Delta Seminar, Ottawa, March 23, 1983, mimeo, p. 10.

55. See Kahn, *op. cit.*, p. 233. Other social benefits AT&T has alleged it provides include the maintenance of stand-by capacity and technological information of a basic scientific nature, neither of which the company can legally or technically fully charge for.

56. A number of economists have argued quite forcefully that most entry into US long-haul markets reflected the rate advantage enjoyed by specialized common carriers that, in turn, owed to the fact that the latter did not pay as much for local exchange "access" as AT&T. See P.W. MacAvoy and K. Robinson, "Winning by Losing: The AT&T

Settlement and Its Impact on Telecommunications," *Yale Journal on Regulation*, Vol. 1, No. 7, 1983, pp. 1-42.

57. See Nina Cornell, Daniel Kelley and Peter R. Greenhalgh, "Social Objectives and Competition in Common Carrier Communications: Incompatible or Inseparable?" in Institute of Public Utilities, *Energy and Communications in Transition*, East Lansing: Michigan State University, 1981, pp. 43-74.

58. See Barry Lesser, "The Implications of the Federal and Provincial Proposals for Regulating Telecommunications: An Economist's Perspective," in Robert J. Buchan, et. al., *Telecommunications Regulation and the Constitution*, Montreal: Institute for Research on Public Policy, 1982, p. 193. The author thanks John Blakney of the Bureau of Competition Policy of the Department of Consumer and Corporate Affairs for suggesting both the need for an explicit definition of cross-subsidy and for the definition offered.

59. See K.L. Wyman, Report of the Inquiry Officer With Respect to the Inquiry Into Telecommunications Carriers' Costing and Accounting Procedures: Phase III – Costing of Existing Services, Ottawa: CRTC, April 30, 1984.

60. See W.K. McCourt, "Local Service Pricing: Current Environment and Future Trends," in R.J. Schultz and Peter Barnes (eds.) *Local Telephone Pricing: Is There a Better Way* (Montreal: Centre for the Study of Regulated Industries), pp. 11-21. It should be noted that (for costing purposes), Bell Canada and BC Tel have been directed to assign "non-traffic sensitive" costs to a category called "access". However, they continue to see access costs as being predominantly related to the provision of local service.

61. Leland Johnson, *op. cit.*, p. ix. Recent steps towards rate rebalancing that have been taken in the US leave the Canadian cross-subsidy from toll to local significantly higher (in relative terms) than the corresponding US cross-subsidy.

62. Information provided to the author by Bell Canada. More detailed evidence on cost-revenue relationships for

different categories of local subscribers is provided in Bell Canada, Response to Interrogatory, Bell (CRTC) 22 May 1984 – 303 IC, June 22, 1984. This evidence shows that rates for most categories of business subscribers equal or exceed the associated costs of providing local service, whereas the rates for all categories of residential subscribers fall short of the costs associated with providing local service. Of course, the findings reported are sensitive to the cost methodology employed by Bell Canada. It is beyond the scope of this study to undertake an evaluation of the complex methodologies employed. Suffice to say, the procedures used have been criticized from several quarters.

63. This is esentially the argument made in William H. Melody, "Cost Standards for Judging Local Exchange Rates" in Institute of Public Utilities, Proceedings of the Thirteenth Annual Conference, MSU Public Utility Papers, 1983.

64. See Alfred E. Kahn, "The Passing of the Public Utility Concept: A Reprise," in Eli Noam (ed.), *Telecommunications Regulation Today and Tomorrow*, and Leland L. Johnson, "Why Local Rates are Rising," *Regulation*, July/August, 1983, p. 33. Wilson argues that not all line costs are traffic insensitive. But his argument is essentially that loop costs increase as a step-function of traffic volume. This seems to argue for periodic adjustments to access charges but not necessarily for access charges tied directly to usage at all points in time. See testimony of John W. Wilson before the Canadian Radio-Television and Telecommunications Commission, "Interexchange Competition and Related Issues", Telecom Public Notice 1984-6, July, 1984.

65. Nina Cornell, Michael Pelcovits and Steven Brenner, "A Legacy of Regulatory Failure," *Regulation*, July/August, 1983, pp. 37- 42.

66. BC Tel estimates that around 55 percent of its local service costs can be considered costs of access. See BC Telephone Co., CRTC 26 September 1984 – 1208 IC, p. 2.

67. Probe Research Inc., Proceedings of a Probe User Seminar, Washington, DC, February 29 and March 1, 1984.

68. See Lawrence Surtees, "Telecommunications Knows No Bounds," *The Globe and Mail*, July 28, 1984, B1. Rate changes approved by the CRTC after this paper was completed have substantially reduced the profitability of reselling long distance service from BC to the United States.

69. See Lawrence Surtees, "Bell Backs BC Tel's Call for Bar on Reselling," *The Globe and Mail*, June 8, 1984, B19. In a related development, American Network Inc. of Portland, Oregon, announced an agreement in principle (in the summer of 1984) to enter into a joint venture with L.D. Telecommunications of Vancouver to provide discount long distance service from Vancouver to all points in the US. See "L.D. Telecom", *The Globe and Mail*, August 24, 1984, B.11.

70. See Manley Irwin, "Interexchange Competition and Related Issues", submission to Canadian Radio-Television and Telecommunications Commission, CRTC-Telecom Public Notice 1984-6, on behalf of The Director of investigation and Research, Combines Investigation Act, undated, p. 32.

71. See comments of GTG – Before the Federal Communications Commission, cc Docket No. 78-72, May 21, 1984.

72. An overview of the dispute is provided in John Schreiner, "Telephone Dispute Blows Up Over Revenue Sharing," *The Financial Post*, February 16, 1984, p. 6.

73. James W. McKie, "Public Utility Regulation: Structure and Performance," in Milton Russell (ed.), *Perspectives in Public Regulation*, Carbondale: Southern Illinois University Press, 1973, p. 90.

74. CRTC, Inquiry Into Telecommunication Carriers Costing and Accounting Procedures, Phase II, Information Requirements for New Services Tariff Filings, Public Notice, Ottawa, August 11, 1978. The Inquiry Officer, in his recent report, recommended that the Commission

should prescribe an incremental costing approach for Phase III. See Wyman, *op. cit.*

75. A thorough exposition of this line of argument is found in John S. McGee, "Predatory Pricing Revisited," *The Journal of Law and Economics*, Vol. XXIII, October, 1980, pp. 289-330.

76. A representative argument in this vein is provided in Steven C. Salop, "Introduction," in *Strategy, Predation and Antitrust Analysis*, Washington: Federal Trade Commission, 1981, pp. 5- 32.

77. This phenomenon is commonly identified in the literature as the Averch-Johnson effect. The relationship between the Averch-Johnson effect and predation is briefly discussed in William A. Brock and David S. Evans, "Predation: A Critique of the Government's Case in US vs. AT&T," in D.S. Evans (ed.), *Breaking Up Bell: Essays on Industrial Organization and Regulation*, New York: North Holland, 1983, pp. 41-59.

78. See Restrictive Trade Practices Commission, *Telecommunications in Canada, phase II, The Proposed Reorganization of Bell Canada*, Ottawa, 1982.

79. These conditions are rigorously derived in W.J. Baumol, John Panzar and Robert Willig, *Contestable Markets and the Theory of Industry Structure*, New York: Harcourt Brace Jovanovich, Inc., 1982. It should be noted that the logic and relevance of the contestability concept has been recently challenged in William G. Shepherd, "Contestability vs. Competition", *The American Economic Review*, Vol. 74, No. 4, September 1984, pp. 572-587.

80. See statement of Drs. Robert D. Willig and Michael L. Katz in Attachments and Appendices to Comments of American Telephone and Telegraph Company, *op. cit.*, p. 12.

81. Much of this evaluation of contestability conditions is taken from *ibid.*, pp. 15-18.

82. See J. Fred Weston and Clement G. Krause, *op. cit.*, p. 23.

83. See Patricia Lush, "BC Tel Rivals Decry Sale Below the Market Price of Subsidized Equipment," *The Globe and Mail*, June 5, 1984, B3.

84. Fuhr argues that AT&T was able to monopolize the terminal equipment market because of its control over access to the telephone network. See Joseph P. Fuhr, Jr., "Competition in the Terminal Equipment Market After Carterfone," *The Antitrust Bulletin*, Vol. XXVIII, No. 3, Fall, 1983, pp. 669-698.

85. See Jonathan Chevreau, "Group Seeks to Avoid Abuses of Inet Trial," *The Globe and Mail*, July 8, 1983, B11.

86. See Dan Westell, "Cellular Radio Firms' Interconnection Talks Hit Snag", *The Globe and Mail*, October 26, 1984, B14.

87. See Brock and Evans, *op. cit.*, pp. 49-50.

88. An extensive discussion of bypass technologies is provided in FCC Docket 78-72, 3rd Report and Order, Appendix F, *Status Report on Wear-Term Local Bypass Developments*, December 22, 1982.

89. *Ibid.*, p. 12.

90. Author's conversation with Alan Walter of Bell Canada.

91. For an elaboration of local bypass opportunities for residential subscribers, see Gail Gnegg, "Sky's the Limit?", *Barron's*, April 4, 1983, pp. 32-34.

92. There are numerous studies that consider the issue of optimal pricing in the telephone industry. See, for example, B.M. Mitchell, "Optimal Pricing of Local Telephone Service," *American Economic Review*, September, 1978, pp. 517-537.

93. A comprehensive review of price elasticity estimates for different categories of telecommunications services is provided in Lester D. Taylor, *Telecommunications Demand: A Survey and Critique*, Cambridge Mass.: Ballinger, 1980, and Lester Taylor, "Problems and Issues

in Modelling Telecommunications Demand," unpublished paper, University of Arizona, mimeo, 1984.

94. See John T. Wenders, "The Eck", *Impacts of Competition in Message Toll Telephone Services*, a study carried out for the Department of Communications and Provincial Governments, Toronto: mimeo, September, 1984, p. VI-17.

95. Andrew Elek, *Impacts of Competition in Message Toll Telephone Services*. In association with National Economic Research Associates Inc. and Telecomsyst Services Inc. (Toronto: Peat, Marwick & Partners, September 1984).

96. Establishing efficient access charges therefore requires some estimate of access externalities as well as the cost of access. This complex task is quite clearly well beyond the scope of this study. We therefore reject the request of one reviewer of an earlier draft to provide an estimate of the optimal access charge.

97. One US study puts the value of the subscriber externality at $4.00 per month per residence line. See Lewis J. Perl, *Residential Demand for Telephone Service*, National Economic Research Associates, White Plains, New York, mimeo, 1983.

98. See James Griffen, "The Welfare Implications of Externalities and Price Elasticities for Telecommunications Pricing," *The Review of Economics and Statistics*, Vol. LXIV, February, 1982, pp. 59-66.

99. The author is indebted to David Colville of the Department of Transportation in Halifax, Nova Scotia, for elaborating upon these arguments in a personal letter.

100. There is no comparable evidence on telephone usage patterns in Canada. However, both Bell Canada and BC Tel representatives have indicated to me that there is no reason to believe that Canadian usage patterns would be substantially different from those documented in the US, except for obvious differences such as relatively fewer blacks in Canada.

101. Belinda B. Brandon, "The Effect of the Demographics of Individual Households on Their Telephone Usage," Cambridge: Ballinger Publishing Company, 1981.

102. As reported in a presentation by Jim Brookes of BC Tel, March 28, 1984. A similar estimate is provided in Lawrence P. Cole, "Telephone Access Charges or Excessive Toll Charges," paper presented at the 10th Annual Rate Symposium of the Institute for the Study of Regulation, Washington, DC, February 6, 1984.

103. A recent analysis suggests that in a scenario in which the telephone companies lost 20 percent of their traffic in those toll sectors in which competitors offered service and assuming 1982 rate structures and demographic characteristics, a maximum of 7 one-hundredth of one percent of the residential subscribers might drop out of telephone service, due to local rate increases. This means approximately 5,000 to 6,000 households in Canada. See Peat Marwick, *op. cit.*, p. 9.

104. See Lester Taylor, *op. cit.*, 1984, p. 36.

105. For any given local revenue target, it appears that about 60 percent of residential subscribers would have lower rates under typical LMS formulae. This point along with much of the following analysis is discussed in more detail in Steven Globerman and W.T. Stanbury, "Local Measured Service Pricing or Rate Rebalancing?: Efficiency and Distributional Considerations," in R.J. Schultz and Peter Barnes (eds.) *Local Telephone Pricing: Is There a Better Way?* (Montreal: Centre for the Study of Regulated Industries, 1984), pp. 39-49. LMS is nothing new in North America. Some large US metropolitan areas have had it for 50 years or so. Outside the US and Canada, about 90 percent of the world's local phone traffic is measured by message alone or by message and elapsed time. See Robert Perry, "Battle Lines Drawn on Local Charge Phones", *The Financial Post*, May 26, 1984, p. 12.

106. This point is made in J.M. Griffen and T.H. Mayor, "The Impact of Local Measured Service on the Texas Consumer," (unpublished paper, Texas A&M; University of Houston), September, 1983.

107. Estimate provided by Mr. James Brookes, BC Telephone Company. The estimate ignores the welfare effects of call suppression. However, given the relatively low elasticities of demand for access and for local calling, the thrust of the foregoing statement is undisturbed by considerations of call suppression.

108. The latter are unkindly referred to by some as "telepests". However, some intensive local callers are charitable organizations, such as The Red Cross. See Patricia Lush, "Long Distance Phone Plan Decried", *The Globe and Mail*, September 8, 1984, B6.

109. See R.M. Fensom, "Data from SLU Study," Ottawa: Bell Canada, mimeo, 1984.

110. See Lawrence Surtees, "LMS Raises Unanswered Questions," *The Globe and Mail*, May 8, 1984, B11.

111. See Mary Anglin, "Local Measured Service: Economic Questions and Social Concerns," *Public Utilities Fortnightly*, April 26, 1984, pp. 62-64.

112. H.W. Janisch, "Cost Separation versus Structural Separation", a paper presented at the Telecom Canada Planning Conference, Ottawa, February 16, 1984. The CRTC has recently begun a long-awaited inquiry to examine the potential requirement that telephone companies create separate subsidiaries for their competitive activities. See Lawrence Surtees, "CRTC Begins Inquiry into Creation of Subsidiaries", *The Globe and Mail*, November 13, 1984, B11.

113. The step beyond maximal separation entails divestment of monopoly from the competitive services of common carriers in the spirit of the AT&T Separation Agreement.

114. See, for example, Johnson, *op. cit.*, Katz and Willig, *op. cit.*, and Stanley Besen and John Woodbury, "Regulation, Deregulation and Antitrust in the Telecommunications Industry," *The Antitrust Bulletin*, Vol. XXVIII, Spring, 1983, pp. 39-68. It should be emphasized that this skepticism extends to monitoring transactions between the regulated affiliate and its fully separated subsidiaries.

115. Wesley Magat, "Introduction-Managing the Transition to Deregulation," *Law and Contemporary Problems*, Vol. 44, Winter, 1981.

116. Alfred Kahn, "Applying Economics to an Imperfect World," *Regulation*, Vol. 3. January/February, 1979, p. 23.

117. Darius Gaskins, Jr. and James Voytko, "Managing the Transition to Deregulation," *Law and Contemporary Problems*, Vol. 44, Winter, 1981, p. 31.

118. Fred Thompson and L.R. Jones, *Regulatory Policy and Practices*, New York: Praeger Publishers, 1982.

119. This is the position taken by Gaskins and Voytko, op. cit., p. 11.

120. Our assessment of the economic consequences of deregulating the long-haul segment of the industry ignores the possibility that provincial governments may have preferences for who actually carries telecommunications traffic in their jurisdictions. While the carriers regulated by the CRTC carry the bulk of Canadian telecommunications traffic, a balkanization of the domestic market would obviously make entry less attractive and contestability more difficult to realize.

121. See Peat Marwick, op. cit., p. 10.

122. Bell Canada, Response to Interrogatory, Bell (CRTC) 22 May 84-303 IC, September 7, 1984, p. 5.

123. *Ibid.*, p. 45.

Comments on Globerman

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Introduction

Professor Globerman's interesting review represents a thorough study of the contribution of economic analysis to the formulation of telecommunication economic policy, including those dealing with regulation. It is not our intent in this short note to review systematically his review nor is it our intent to consider the policy dimensions of his paper. Our comments will be restricted to certain fundamental questions regarding the economic analysis of telecommunications and, more specifically, the applicability of existing empirical works to the current telecommunication policy debate. In addition we will sketch an analytical framework which might be developed as a complement to approaches considered by Globerman.

The view we would like to convey is (i) that very powerful analytical economic tools have been developed in recent years,[2] (ii) that they must play a fundamental role in the existing telecommunication policy debate, but (iii) that existing applications in telecommunications, while extremely useful, have serious flaws, and (iv) that the correction of those flaws is particularly complex and will require mixing a good understanding of telecommunications with a thorough knowledge of those new methods. Among the fundamental flaws in existing applications of economic analysis to telecommunications, one could cite: (i) the improper specification of the telecommunication output, (ii) the inadequate treatment of the fundamentally stochastic nature of the subscriber's demand, (iii) the failure to properly recognize that such a demand must be by nature *ex ante* and (iv) the level of aggregation at which the analysis is carried.

The applications reviewed by Globerman seems to fall in two broad categories: the econometric approach and the anecdotal approach. The anecdotal approach is particularly useful in alerting the analyst to specific new issues. It should not be used, however, as the basis on which policy is formulated. The alternative, the econometric model, has the advantage to provide a systematic and generally exhaustive treatment of well formulated problems. However it has limitations of its own which will be reviewed below. Those derive from limitations in the databases used, in the level of aggregation of the analysis, and in the ability to unravel fundamental elements such as economies of scale and technological change. Even though some of those could be corrected, there remains a large set of issues, in the present debate, which cannot be handled at that level. An alternative to those approaches will be suggested. It is hoped that such an alternative could eventually be used to buttress the policy formulation process by resolving some of the outstanding problems in the use of economic analytical tools in telecommunications.

Existing analytical methods in economics are designed around widget-type goods, while the essential characteristics of telecommunication goods results from the public switched network (PSN) and the externalities resulting from it. While economists, on occasion, have gone beyond widget-type goods and talked of these externalities[3] they have only played a very superficial role in the study of the industry structure. The challenge ahead will be to extend those tools so that they may be better applied to telecommunications.

The rest of this note will consist of a critique of existing econometric models and of the sketching of a possible framework for the analysis of some of the outstanding issues.

A Review of the Review of Econometric Studies

Globerman's review consists essentially in evaluating econometric results regarding scale and scope. It is based on the premise that "the standard test for natural monopoly in a multi-product industry is to determine if the production function is sub-additive". Given the difficulties in testing for sub-additivity, he further observes that "empirical tests are directed at establishing whether the sufficient conditions for sub-additivity – economies of scale and economies of scope – are satisfied".

We shall attempt to look at those econometric studies in a different light. The question we propose to consider is whether the conclusions which can be drawn from them are sufficient to meet the objective of "describing and evaluating" the monopoly issue.[4] Sufficient is used here by opposition to necessary. This distinction is important since the necessity for these studies, hence the need for a review, seems to us hard to question. We will consider in turn the interdependence, in applied models, between scale and technological change, the impact of aggregation, and the appropriateness of the total factor productivity (TFP) data bases. It is not our intention however to present an exhaustive critique of econometric models, and in particular we will not consider such problems as the Averch-Johnson effect,[5] the objective function of the firm,[6] nor the problem raised by the lack of fungibility of telecommunication plants.

Our objectives are to investigate ways in which the econometric approach and the TFP data bases are estimated from could be improved and to suggest that, while these econometric studies have contributed to our understanding of the telecommunication sector, they cannot be used, by themselves, as the analytical base on which a telecommunication policy should be formulated. First, these studies are based on existing TFP data bases, data bases which do not properly reflect today's market realities, such as, for instance, the need to separate access from usage. While significant improvements can be made t(those data bases, existing econometric models are too highly aggregated to meaningfully address a large set of issues. Thus, while they do contribute to the overall debate regarding the industry structure, the pragmatic issue of competition requires a much more disaggegated level of analysis: no competitor is concerned by the toll market as a whole. Finally, as a result of our inability to unambiguously define and quantify technological change, scale and scope effects cannot be disentangled from technological change effects.

Total Factor Productivity Data Bases

Essential issues to consider in constructing a data base which will be useful at the aggregate level relate to (i) the output quantities, (ii) the weights used in the aggregation, (iii) the aggregation methodology, and (iv) the aggregation path or, equivalently, the set of aggregate outputs. As far as the output quantities are concerned, some more fundamental questions are (i) what is meant by output, and, in telecommunications, (ii) are all tariffed items outputs, and (iii) are all outputs tariffed. The definition of output must originate from the subscriber's demand rather than from the existing range of services available on the market. Similarly, the weights must originate from the production process' cost function. An added complexity results from the existence of multipart tariffs, an issue which has not yet been properly addressed in the literature.

With one exception,[7] econometric studies of telecommunication carriers, both in Canada and in the United States, are based on carrier-specific TFP data bases. This is appropriate since such data bases provide by definition an exhaustive accounting of the firm's inputs and outputs. In fact Denny and Zohar[8] notes that, in comparison with other industries, firm-level telecommunication TFP data bases are comprehensive, detailed, and that their input components have several unique features. Nevertheless existing telecommunication TFP data bases also have features which limit their usefulness. Some of those will be reviewed below. To better understand those, it is useful to note that, while they have been improved over time,[9] they have not conceptually evolved since the sixties when they were first introduced. In the subsequent period, the telecommunication sector has gone through dramatic changes. Thus the kind of issues Globerman reviews in his paper had not yet been formulated in the context of the sector. In addition, in those days, the economic theories of aggregation, index numbers, and production were not as developed as today. All of those play a fundamental role in modern TFP analysis. This new state of affairs is not adequately reflected in even the most recently published telecommunications TFP data bases.[10]

With respect to our question as to what is meant by outputs in telecommunications, TFP data bases equate outputs to tariffed items. In addition, they consider different items as distinct commodities, where commodities are implicitly associated with widgets. A cursory look at even broad classes of services will easily convince anyone that this is inappropriate: a plain old telephone service (POTS), WATS, special access lines (SAL), foreign exchange lines, and private lines are perfect substitutes to carry a call between two specific locations as demonstrated by the appearance of resellers. Even if that issue were set aside, while the first question relating to tariffed items can mostly be answered in the affirmative, this is not quite as true of the other: in Canada, local usage is largely not tariffed, except maybe in some vague average sense. Such issues have not been studied in TFP studies.[11] As far as the weights are concerned, while it is a standard result of economic theory that they should be based on marginal costs, they are based on prices which in a regulated monoply, with cross-subsidies, will significantly diverge from the corresponding marginal costs. Innovative approaches have been explored in other sectors.[12]

The aggregation path, i.e. the grouping of tariffed items into aggregate commodities, is also inappropriate.[13] Questions regarding economies of scale and scope, sustainability, pricing, etc. have always been as much and, by now are probably more questions internal to existing TFP groupings than questions which relate groupings among themselves.

The Aggregation Level

Econometric models have progressed very rapidly over the last decade, and the Breslaw and Smith,[14] Fuss and Waverman,[15] and Kiss et al.[16] models of Bell Canada are probably as sophisticated as any firm-level econometric model is existence today. Nevertheless, they are fundamentally at best three inputs-three outputs models. TFP data bases on which they are estimated are only marginally more disaggregated. Telephone companies, on the other hand, have thousands of output categories. This need not be a problem as long as the aggregation procedures are appropriate and as long as the aggregation level does not hide fundamental elements of the problem at hand.

The aggregation level, in which one talks of categories such as Local, Toll (possibly subdivided into Intra-Company, TCTS (now Telecom Canada), and Adjacent Member categories), and Miscellaneous Services is inadequate to study most issues relating to competition. In the present pricing structure, tariffs are mostly averaged across subscribers, both at the local (where they do not depend on individual subscriber's local plant requirements) and at the toll (where they depend on the distance between end-points, irrespective of the particular route) levels. We would like to suggest that cross subsidies might well be far more significant within these categories than between them. For toll services the cross-subsidies will be between heavy traffic routes and light traffic ones. Similarly, at the local level, low income and sparsely populated areas are likely to be heavily cross-subsidized by office towers, residential apartment houses, and other sufficiently large end-user clusters.

The aggregation issue cannot be addressed with existing econometric studies, yet the evolution of the telecommunication sector in the United States makes it clear that the analysis cannot meaningfully be carried solely at those high aggregate levels, even after the TFP data bases have been upgraded. Interexchange carriers are concentrating on major routes while large office and housing complexes are being organized in teleclusters. As long as rates are averaged, i.e. output is not appropriately defined, competitors, other things equal and even if they are not as efficient, can earn, at least for a time, a positive economic profit by entering niches within the market and offering a lower price to those who contribute to the cross-subsidization.

Economies of Scale and Technological Change

Even if the questions raised in the two preceding sections were answered, existing econometric models would still have to be shown capable to satisfactorily unravel scale from technological effects to justify Globerman's conclusion that "the overall cost-output relationship for Canada's largest common carrier (Bell Canada) is characterized by significant economies of scale". Fuss's excellent review on the same subject[17] suggests a more guarded conclusion. Thus Fuss concludes that "it is only relative to the reasonableness of technical change estimates that the appropriateness of scale estimates can be evaluated". The modeling of technological change in telecommunications has become ingenuous and sophisticated over the last few years. This is particularly evident in Fuss,[18] Christensen et al.[19] and Kiss et al.[20] Time trends have largely been abandoned and nowadays analysts typically follow one of two courses. They model either R&D expenditures,[21] or one or more of the most prominent new technologies, such as DDD, the number of stations connected to electronic switches, etc. In our view, Fuss correctly criticizes the former approach by noting that "it is a measure of input into the innovative process rather than the output of the process". He notes about the latter that "they suffer from the disadvantage that only a small number of major innovations are covered".

The more fundamental problem one faces in testing for economies of scale, however, relates to the very concept of technological progress. While the idea is relatively well understood, it does not lead, except in particularly simple production processes, to an entity which can be unambiguously quantified. Time trends as proxies for technological change can be questioned on at least two grounds. First, most technological developments are not divisible. Then, there is no evidence that new technologies, provided they can be quantified, would flow at a constant rate. Using as proxies specific new technologies such as DDD does not have such flaws. However, whether or not this technology is the only technological change which occurred throughout the observation period cannot be established. In addition, presumably, any one technology has a finite lifespan, and as the series of observations increased, its relevance eventually vanishes. Introducing more than one such technology, while an improvement, does not solve the problem. Then one needs to establish whether, nevertheless, the proxy is adequate, i.e., whether it is highly correlated with the other technological changes. Only when they are highly and positively correlated can we expect the econometric model, other things equal, to provide proper estimates of scale effects. In our view, we are not yet in a position to even establish that these newer measures of technological change are superior to the traditional time trend. Short of a solution to this problem, existing econometric studies on scale and scope must be used with great care. There exists an approach which was already suggested by Fuss[22] and which merits being explored carefully, namely the construction of an econometric model from pooled time series-cross section TFP data bases, across Canadian carriers.[23]

A Possible Framework

The objective of this section is to sketch a framework which, it is hoped, could complement the approaches reviewed by Globerman in the analysis of the impact of competition. In addition, this framework is conceived for the study of that impact on various telecommunication submarkets. Like existing econometric models, such a framework should be able to analyse the industry's structure systematically. However, it should balance this goal with the requirement that it be sufficiently flexible to reflect today's market realities and to permit the consideration of issues raised by the anecdotal approach. Ideally, this framework would take the form of a highly disaggregated econometric model constructed from an ideal cross section-time series data base, in which the output measures have been properly redefined. Clearly, while one could go a long way toward constructing such a data base,[24] however such an econometric model is outside the scope of today's statistical methods. We hope to show, however, that a new look at what constitutes the sector's telecommunication output can take us a long way toward meeting this goal.

As the definition of output must eventually relate to the end-user's demand for telecommunication services, we shall begin our analysis by studying what the subscriber demands when he/she goes on the market to purchase telecommunications services. This analysis will be used to propose a classification scheme for a carrier's output. This scheme is not to be used as a substitute for existing aggregate categories. It cannot resolve either the aggregation problem. Its only purpose is its use as a means to organize our thinking. Then we shall attempt to illustrate through the analysis of one category, access, how such a framework might contribute to the policy debate.

The Subscriber's Telecommunication Demand

In this analysis, we shall restrict our attention to the demand for real time voice and voice-equivalent services. The generalization of the framework to data services should not raise any fundamental problem. The basic approach evolves from the observation that what the subscriber demands when going on the telecommunication services market is not expressed in terms of the services offered on the telecommunication market but rather in terms of the attributes required by the subscriber. This brings us to suggest the use of a Lancaster framework in which the subscriber goes to the telecommunication market and purchases services in order to produce what he/she demands.[25]

The end-user, whether a resident or a business, is not generally in the telecommunication business. Hence, for him/her, telecommunications is a means to transmit messages between two or more locations. For a given point-to-point message, in the absence of a PSN, the end user would have to connect the two locations through a private line, a very expensive undertaking. However the PSN's existence provides him/her with an alternative. Each of the two locations can be connected individually with the PSN. Then, the end-user only requires an address (a telephone number which enables the PSN to route the message) and a dedicated link (which could consist in no more than a drop for a broadband two way cable, as proposed by some cable company) between each location and the respective PSN gates. For the rest of the transmission, the end-user takes advantage of the existence of the PSN.

In fact, it seems reasonable to assume that the subscriber does not decide on a call-by-call basis on (i) whether to make the call and on (ii) how long to hold it. A reasonable formulation which takes into account the fundamentally stochastic structure of telecommunication usage would be to assume that at anyone instant in time the subscriber, given say utility maximization for a resident or either profit maximization or cost minimization for a business, demands a call arrival proabability distribution and a call duration proabability distribution.[26] The particular distributions will depend on telecommunication prices, other prices, and the resident's income or the firm's output, or still the market conditions for the business end-user. In this framework, individual calls can be seen as individual random drawings from the chosen distributions. In this decision process, however, the end-user is constrained by the ease of access. This entity can be measured by the subscriber's grade of service, or more specifically by her/his specific blocking rate. Such a model would imply that the subscriber's utility or production function has as telecommunication arguments those distribution functions for various jurisdictions and a blocking rate.[27]

This description of the end-user's demand implies that the telecommunication output takes two forms: the access to the PSN and the use of the PSN.[28] The message transmission has now been subdivided into two types of transmission, one through the originating and terminating locations' access to the network, the other through the PSN itself. The latter introduces additional functions, namely the local switching of the call by which we mean its switching at the originating and terminating gates to the network.

Let's consider the access to the network. In itself, it does not contribute to the end-user's well-being and it was not directly introduced as an argument in the utility maximization/cost minimization process. Nevertheless, in the absence of any such access, the alternative would be, any time the end-user wants a message to be transmitted, to establish think link with the network. At best, such a proposition, given existing technologies, would be, if feasible at all, an uneconomical option. In other words, the access can be seen as a durable good which the end-user requires to meet his demand for telecommunication services. The essential feature of access is not that it is fixed but rather that it must be demanded prior to the usage consumption. While the traditional star local loop network would seem to maximize the fixed costs associated with access, others, such as the two-way cable being installed by cable companies, minimize the access fixed cost. In practice, most distribution networks use today concentrators and, hence are somewhat between these two extremes. The part which will always remain is the decision about the number and the type of PSN gates, i.e. the number and type of addresses, the subscriber wants.

The transmission through the PSN requires two classes of operation, first the switching of the message at the end-user's network access gates (both originating and terminating) and then the transmission of the message between those two switching locations. It should be noted that the transport of the message may involve considerably more switching.[29] This is however perfectly transparent to the end-user, the routing decision being the responsibility of the carrier. Hence different routings on the PSN do not constitute different outputs since the carrier is assumed to select those in order to stay on its production possibility frontier. Then, the carrier's output, in terms of this message transmission over the PSN, is made up of two parts: first the local wire center switching[30] and then the transmission between the local wire centers' switches. In this framework, then, the carrier's output which correspond to the transmission of a message between two locations consists in (i) an access to the network (i.e. an address), (ii) the local wire center switching of the message (at both ends), and (iii) the transmission of the message over the PSN.

In fact, the picture is somewhat more complex. Existing networks are based on a hierarchy in which calls are routed from local to toll switches, transmitted between toll switches, and then rerouted from toll to local switches. Provided his/her toll traffic is sufficiently large to justify it, the end-user has the option to bypass the local wire center and route it directly to the toll switch. Depending how this service is offered, it will correspond to WATS, SAL, or some other bypass-type services. This scheme can be taken one step further. Provided he/she has enough traffic to justify it, the end-user has the additional option to bypass the toll network altogether and to connect his/her location through a foreign exchange (FX) to the local wire center of the other location.

It is now possible to look at the carrier's output in the context of this message. It consists in (i) the provision of dedicated facilities between the end-user and some point of the PSN, (ii) the switching of the message at its entrance into and at its exit from the PSN, (iii) the transmission of the message between the local wire center and the toll switch,[31] and (iv) the transmission of the message between toll switches. Those categories do not represent a complete categorization of the voice and voice-equivalent telecommunication output; for instance, one would have to add to their billing. They are, however, adequate for our purpose which is to sketch a framework which could help in the policy debate. If we associate the foreign location with a cluster and if we introduce our assumption regarding the level at which decisions are taken, the message we are talking about will be initiated, during a time period with a certain probability. The relevant quantity, hence, is the distribution function from which it is drawn. Then that distribution function, together with those for the other jurisdictions, will contribute to the determination of the access level and type required. This makes access basically usage-sensitive in terms of expected usage. The same holds for the other components of the output, the major difference being due to the fact that, as the call moves up the hierarchy, the risk to the carrier associated with the stochastic nature of the call is decreased since the traffic is concentrated over a greater population of subscribers. Again this output is related to a given route connecting the home location to a foreign cluster. The aggregation over all route, to take into account the whole PSN, would be a gigantic task.

Economies of Scale Reconsidered

We already know from existing econometric results that the output categories used are not separable (Fuss, 1983). While we could expect our four output categories to be more nearly separable in a monopoly market, we do not expect them to separable either. In addition, one would expect competition to make them even less separable. For instance, the end user's access requirements depend on the relative positions of the end-user vis-à-vis the local and, for large subscribers, the toll or inter-exchange (IX) carriers' central offices. In a competitive environment, central office locations become a decision element to be determined through market forces. Already, in the United States, one can observe telebuildings and other forms of teleclusters appearing in which the local switching functions are performed, through a PBX, in the telebuilding itself. Those new market entities can best be conceptualized as small local telephone companies centered on a switch which is provided through a PBX or a Centrex. That switch can be conceptualized in our framework as the local switch since it can route the call either locally or directly to various gates to the PSN (locally, at the originating toll switches with WATS and SAL, and at one or more terminating local wire center through FX lines).[32] One can also observe that in the United States, the interexchange carriers are selecting their points of presence (POP), i.e. to toll switches, strategically in terms of their subscribers' population.

Our observations regarding the incentive new and existing carriers (i.e. IX carriers, telebuildings, . . .) have to strategically locate their switches raises an issue which has been largely ignored in existing economic studies[33] namely whether competition can lead to an equilibrium. For instance, is there a stable allocation of wire centers and switches, i.e. given any network configuration, is there an incentive for a new coalition of end-users to offer them access?

Separability is important since if the proposed categories could be shown to be sufficiently separable, one could write individual production process for each one of them. Then one would basically have to be concerned with scale economies, independently of scope.[34] Even though we have indicated that separability should not be expected, the framework we have outlined should help clarify issues relating to the market structure.

Given our limited objective, we shall consider only the access category. To talk of economies of scale at the access level one must circumscribe the problem more carefully. First of all, in the following discussion, we do not take into account scale and scope effects associated with such inputs as the carrier's management and maintenance costs, i.e. we assume separability. However, we also have to specify what we mean by scale. In this problem, economies from providing access to twice as many subscribers are evaluated under the constraint that the subscriber density has doubled. We are not concerned with possible economies, probably mostly from management and maintenance, one might observe were the subscriber density held constant. Assuming that the call process can be described by a Poisson process and that its duration can be described by a negative exponential one, i.e. that the overall process is described by an Erlang B process, then, for a fixed blocking rate, the load carried by access lines increases with the number of access lines.[35] Their existence results mostly from two factors: (i) the discrepancies between today's rate structure and the costs of providing the various network services, and (ii) the inherent economies of scale that can be gained by bundling access across subscribers.

Concluding Remarks

We have explored in this note a certain number of issues complementary to those covered in Globerman's survey paper. First we observed that the policy conclusions contained in his paper could be broadly categorized into two broad classes, the anecdotal and the econometric approaches. Then we noted that, while the former could only be used to prime the analytical process required for informed decision making, the latter was a necessary but not a sufficient component of that process. The issues related essentially to the adequacy of existing TFP data bases, the aggregation level of the analysis, and our present inability to satisfactorily unravel scale and scope effects from technological effects.

In the last section, it was observed that, while significant improvements could be made to existing TFP data bases, statistical techniques are likely to continue to restrict for some time the set of issues which can be studies through global econometric models. Then a possible approach was sketched as a possible complement to the anecdotal and econometric approaches. This approach consists of essentially starting from the end user's demand for telecommunication services. Through a Lancaster-type framework, that demand can be translated into what are the effective outputs of the production process. Then, it is noted that end users, as soon as they are able to bundle their services, can be conceived as small carriers. By studying progressively larger such carriers with an increasing number of locations and a wider choice of options to route calls, it is expected that many of those issues which cannot be fitted within existing econometric models could not be analyzed systematically. In particular, it is observed that most economies of scale and scope effects can be at least approximately studied at such a micro level, say one or a few COs for switching and distribution, one or a few routes for transmission. Those which cannot be studied that way relate essentially to such things as management and maintenance, functions which are less unique to the telecommunication sector and which could be approached through the study of other firms, not necessarily in the same sector. Hence, we are suggesting that the issues surveyed by Globerman can be considered by constructing portions of the network, at the distribution and switching level or at the transmission level, using simultaneously engineering, econometric and network design tools.

It was our intent to convey the view (i) that very powerful analytical economic tools have been developed in recent years, (ii) that these must play a fundamental role in the existing telecommunication policy debate, and (iii) that the correction of the serious flaws one observes in existing applications is particularly complex and will require mixing a good understanding of telecommunications with a thorough knowledge of those new methods.

Notes

1. The author would like to thank Robert G. White, Darius Sabavala, Prabir Neogi, and Mary Shugard for helpful suggestions. Opinions expressed here are those of the author and do not necessarily reflect the opinions of Bell Communications Research.

2. An excellent introduction to those can be found in: Baumol, W.J., J.C. Panzar, and R.D. Willig (1982), *Contestable Markets and the Theory of Industry Structure*, Harcourt Brace Javanovich, New York; and, Sharkey, William W. (1982), *The Theory of Natural Monopoly*, Cambridge University Press, Cambridge. Many of the issues covered in this note have also been treated in Sharkey (1982).

3. Externalities play a role in demand analysis, Taylor, L.D. (1980), *Telecommunications Demand: A Survey and Critique*, Ballinger, Cambridge; Fontenay, A. de et al. have introduced them formally in the optimization process for residential subscribers by using a duopoly model: Fontenay, A. de, D. Gorham, and M.T. Lee (1982), *Stochastic Demand for a Continuum of Goods and Services: The Demand for Long Distance Telephone Services*, Paper presented at the annual meeting of the American Economic Association, New York. On the other hand, at the analytical level, even Baumol et al. (op. cit.), one of the most brilliant presentations of industrial organization, never go beyond a good which could be anything other than a widget.

4. By "conclusions which can be drawn" is understood conclusions which can be defined, not conclusions which have been made by some of those studies' authors. To illustrate our contention, we shall consider Evans and Heckman's conclusions, in: Evans, D.S. and J.J. Heckman (1984), "A Test for Subadditivity of the Cost Function with an Application to the Bell System, American Economic Review", 74 (4), pp. 615-623. "We find limited evidence that the Bell System did not optimally decentralize itself during these years as was therefore operating inefficiently". While we do not question that those conclusions can be drawn from their model of the Bell System, it is our contention that those conclusions have

been established for that model only. For their conclusion to contribute to policy formulation, they would still have to show that their model adequately describes the Bell System.

5. This effect was studied in: "Fuss, M. and L. Waverman (1981), *The Regulation of Telecommunications in Canada*, Technical Report No. 7, Economic Council of Canada, Ottawa.

6. For a study of this question, coupled with a critique of econometric models in telecommunications, see: Perrakis, S., J. Silva-Echenique, G. Warskett, and A. de Fontenay (1982), *Règlementation des télécommunications et risque: Application aux problèmes de la règlementation de l'intégration verticale et de la concurrence dans les nouveaux services*, Report to the Department of Communications, Ottawa.

7. Bernstein, J.I. (1980), "A Corporate Econometric Model of the British Columbia Telephone Company", *Forecasting Public Utilities*, O.D. Anderson, ed., North Holland, Amsterdam, pp. 17-38.

8. Denny, Michael and Uri Zohar (1984), *Comparing Productivity Growth in Selected Canadian and American Industries: A Progress Report*, Paper presented at the American Enterprise Institute's Conference on Inter-Industry Differences in Productivity Growth, Washington, DC.

9. For instance, fixed base Laspeyres indexes have often been replaced by chained translog indexes, the level of coverage has been greatly improved, etc. For a good introduction to Bell Canada's TFP data base see: Kiss, F (1983), "Productivity Gains in Bell Canada", *Economic Analysis of Telecommunications: Theory and Applications*, Courville, L., A. de Fontenay, and A.R. Dobell, eds., North Holland, Amsterdam, pp. 85-114.

10. Olley, R.E. and C.D. Le (1983), *Total Factor Productivity of Canadian Telecommunications Carriers*, Project Report to the Department of Communications and to the Members of

the Canadian Telecommunications Carriers Association, Ottawa.

11. A partial exception would be: Denny, M., A. de Fontenay, and M. Werner (1981), *Comparative Efficiency in Canadian Telecommunications: An Analysis of Methods and Uses*, Report to the Department of Communications, Ottawa.

12. Wang Chiang and Friedlander, in: Wang Chiang, S.J. and A.F. Friedlander (1983), *Output Aggregation, Network Effects, and the Measurement of Trucking Technology*, Massachussets Institute of Technology, mimeo, Cambridge, p. 3 note that "... trucking shipments can be characterized by point of origin and destination, ...", (while in): *Trucking Technology and Efficient Market Structure*, Massachussets Institute of Technology, mimeo, Cambridge, they note that "... for short-haul movements, shipments are usually dispatched to adjacent terminals for consolidation with other shipments bound for the same destinations,.... By contrast the objective of long haul LTL (less-than-truckload) operations is to utilize fully the advantages of routing strategy and terminal operations...." (p. 8) Associating short-haul with local, long-haul with toll, and terminal operations with switching, it would seem that an approach such as, for instance, the one pioneered by: Friedlander, A.F. and R.H. Spady (1981), *Freight Transport Regulation: Equity, Efficiency, and Competition in the Rail and Trucking Industries*, MIT Press, Cambridge, merits attention in telecommunications.

13. It is interesting to note that, by opposition, Bell Canada's *5-Way Split Analysis* has evolved and gone a long way toward developing a more realistic output classification scheme.

14. Breslaw, J.A. and J.B. Smith (1982), "Efficiency, Equity, and Regulation: An Optimal Pricing Model of Bell Canada", *Canadian Journal of Economics*, XV (4), pp. 634-648.

15. Fuss, M. and L. Waverman (1981), *op. cit.*

16. Kiss, F., S. Karabadjian, and B.J. Lefebvre (1983), "Economies of Scale and Scope in Bell Canada", *Economic Analysis of Telecommunications: Theory and Applications*, Courville, L.A. de Fontenay, and A.R. Dobell, eds., North Holland, Amsterdam, pp. 55-84.

17. Fuss, M.A. (1983), "A Survey of Recent Results in the Analysis of Production Conditions in Telecommunications", *Economic Analysis of Telecommunications: Theory and Applications*, Courville, L., A. de Fontenay, A.R. Dobell, eds., North Holland, Amsterdam, pp. 27-54.

18. Fuss, M. (1983), *op. cit.*

19. Christensen, L.R., D. Cummings, and P.E. Schoch (1983), "Econometric Estimation of Scale Economies in Telecommunications", *Economic Analysis of Telecommunications: Theory and Applications*, Courville, L., A. de Fontenay, A.R. Dobell, eds., North Holland, Amsterdam, pp. 27-54.

20. Kiss, F., S. Karabadijian, and B.J. Lefebvre (1983), *op. cit.*

21. While this approach has not been followed in Canadian studies, in the United States, it was used by Christensen *et al.*: Christensen, L.R., D. Cummings, and P.E. Schoch (1983), *op. cit.*, and by Evans and Heckman: Evans, D.S. and J.J. Heckman (1984), *op. cit.*, p. 622.

22. Fuss, M. (1983), *op. cit.*, p. 23.

23. This approach was used, utilizing index numbers, to compare carriers in terms of their TFP: Denny, M., A. de Fontenay, and M. Werner (1983), "Comparing the Efficiency of Firms: Canadian Telecommunications Companies", *Economic Analysis of Telecommunications: Theory and Applications*, Courville, L., A. de Fontenay, and A.R. Dobell, eds., North Holland, Amsterdam, pp. 115-130.

24. In view of the *5-Way Split Analysis*' more realistic classification scheme, it would seem that existing TFP data bases could be easily upgraded to better reflect the new market realities. The aggregation problem, on the other hand, raises the problem of data confidentiality. Finally, the use of marginal costs-based weights in place of

regulated prices-based weights is probably a more involved undertaking. Nevertheless, once again, the *5-Way Split Analysis*, regardless of its methodological validity, should provide a useful starting point.

25. An excellent introduction to this subject can be found in: Deaton, A. and J. Muelbauer (1980), *Economics and Consumer Behavior*, Cambridge University Press, Cambridge, Ch.10.

26. A partial formulation of a model of this type can be found in: Fontenay, A. de, D. Gorham, J.T.M. Lee and G. Manning (1982), *"Stochastic Demand for a Continuum of Goods and Services: the Demand for Long Distance Telephone Services"*, Paper presented at the American Economic Association Convention, New York. A somewhat different and more complete treatment was presented in: Fontenay, A. de and R.G. White (Forthcoming), "An Access Line Mix and Usage Allocation Demand Model", *Journal of Business and Economics*.

27. It can be shown that it is not the actual blocking rate but a blocking rate probability distribution function which has to be specified.

28. In this, we are not considering the subscriber's demand for customer premises equipment (CPE) and inside wiring (IW). In other words, we are implicitly assuming that the telecommunications production process is separable between the CPE and IW output on one side and access and usage on the other. This might not be an appropriate hypothesis once one takes into account that many of the CPE functions could just as well be fulfilled by the central officed (CO) and vice versa.

29. AT&T Bell Laboratories (1983), *Engineering and Operations in the Bell System*, Second Edition, Murray Hill, section 4.2.1. The additional switching is in fact based on the same type of decision. The carrier must decide between transporting messages directly between the two switches and using one or more intermediary nodes. Provided the carrier cost minimizes, it will automatically select the least costly among all network architectures (there are other constraints such as national security which may limit the firm's cost minimization). In the

United States, especially if the two locations are situated in different jurisdictions, most or all of that transport is provided on a competitive basis. Note that we have not allowed for special access lines (SAL) and local network bypass.

30. Local here does not correspond to what North American carriers call local since it is restricted to the wire center and excludes all EAS.

31. The framework can be expanded to take into account the distinction between local inter-CO transport and toll transport.

32. There remains an ambiguity since, if instead of a telecluster, one was considering a large end-user, using a PBX or a Centrex, that switching capacity, while being private, could be thought of as integrated in the PSN since it fulfills network functions which are essentially associated with the PSN. With the bundling of access, one introduces private networks. With the introduction of resell, the PSN becomes a concept broader than the traditional carrier's monopoly network. The trunks between a telecluster and the wire center are not different from those between two local wire centers.

33. An exception of a sort can be found in Sharkey's work. An example would be: Sharkey, W.W. (1982), "Suggestion for a Game Theoretic Approach to Public Utility Pricing and Cost Allocation", *Bell Journal of Economics*, Vol. 13, pp. 57-68.

34. This is only approximately correct: Baumol, William J., John C. Panzar, and Robert D. Willig (1983), *Contestable Markets and the Theory of Industry Structure*, Harcourt Brace Jovanovich, Inc., New York.

35. AT&T Bell Laboratories (1983) *op. cit.*, pp. 159-160.

Players, Stakes and Politics in the Future of Telecommunications Policy and Regulation in Canada

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Introduction

Telecommunications policy and regulation in Canada is currently undergoing rapid and substantial change as traditional rationales and procedures are being called into question and the country undergoes what has become known as the "information revolution."[1] Sustained technological advance in microelectronics and its application to communications systems and services is opening up a new and expansive information marketplace at the same time that pressures for competition within the telecommunications sector and at its boundaries are challenging long-established patterns of monopoly and regulation. These twin forces – technological innovation and pressures for competition – generate a host of important issues for the future of telecommunications regulation in Canada. Politics – conceived either as a mechanism for achieving "the authoritative allocation of values for a society" or more crudely as "who gets what, how, where and when" – is obviously central to the way in which those problems are raised and resolved.[2]

It is striking, however, that "political factors" have *not* always been acknowledged and taken seriously within the telecommunications field which has traditionally tended to emphasize technology, economics and law as more significant factors shaping its future. One need only refer to two of the major studies of telecommunications regulation done in Canada during the early 1970s, and regretably still among the few presently available, namely *Instant World* which resulted from the federal government's Telecommission Project and *Telecommunications for Canada* sponsored in large part by Bell Canada and the Trans Canada Telephone System.[3] In each case, while the analysis and insight arising from the technological, economic and legal perspective is extremely valuable, there is a glaring failure to take political factors into account. In more recent years, however, "political factors" are being acknowledged increasingly as playing an important role in governmental and industry decision-making. The Clyne Committee of the late 1970s drew attention forcefully to the serious implications for Canadian sovereignty of technological developments in the communications field.[4] Likewise, attempts at constitutional reform – though ultimately unsuccessful in achieving changes in the division of powers between the federal and provincial governments in the communications field – did highlight the need for conceptual as well as practical solutions to the jurisdictional impasse. In addition, the Economic Council's Regulation Reference as well as other efforts at regulatory reform have underlined the problems posed by excessive government regulation and proposed increased competition as an appropriate solution.[5] And more recently, there has been growing interest in the possibility of some form of more explicit "industrial strategy" as the best way to restructure the telecommunications sector.

The role of "political factors" – and the term need not have any pejorative connotations – is particularly salient in decisions about the future of telecommunications policy and regulation in Canada for at least three reasons. First of all, the range of actors and interests involved is extensive, powerful, often in conflict with one another, and continually growing: established common carriers and equipment suppliers as well as more recent and potential entrants into the expanding markets for telecommunications products and services; the federal and provincial governments both as policy-maker and regulator operating within a complex and unsettled division of powers; residential and business subscribers concerned about maintaining long-held practices or seeking new services or better rates; industry, consumer, and public-interest representation acting to influence governmental and regulatory decision-making; and, not least of all, foreign governments and competitors both in terms of trade flows and treatment of subsidiaries as well as in terms of the "demonstration effect" of policies adopted elsewhere.

Secondly, many of the emerging issues in telecommunications policy and regulation – even though they may appear initially and most obviously as matters of technology, economics or law – are inherently political in nature. The introduction of new products and services like videotext or cellular radio tends to become bogged down in regulatory restriction and subtly shaped by political processes. System interconnection and terminal attachment dramatically opens up areas of traditional monopoly practice to the play of competitive forces but also gives rise to a much expanded set of actors whose interests must now be accommodated within the political process. Changing the long-standing, politically-sanctioned cross-subsidization of local telephone service by long-distance service has the potential to be a profoundly redistributive issue – pitting the interests of residential users against business users, lower-income versus higher-income subscribers, urban versus rural interests – and runs squarely into well-established national and social objectives like universality of service and reasonable rates. And vertical integration within the telephone industry hinges on such matters as alleged economics of scale and scope but also raises important ideological concerns about the need for government intervention to achieve industrial policy goals vis-a-vis the relative merits of unfettered market competition.

Thirdly, the particular character of telecommunications policy and regulation as it has evolved in Canada over the years has a political component embedded deeply within it. That political component has often been subtle rather than obvious and has frequently differed significantly from the US experience. The historic role played by transportation and communications in national development, the significant participation of public enterprise as well as private enterprise in the provision of telecommunications services, divided jurisdiction between federal and provincial governments in providing and regulating telecommunications services, the relative weakness of independent regulatory authority within the cabinet/parliamentary system of government, as well as Canada's concern about foreign ownership and control – all tend to underline and reinforce the importance of "political factors".

Viewed from this broader political perspective, then, what are the major issues confronting telecommunications policy and regulation over the next five to ten years? How might an appropriate policy agenda in this area be constructed? On this latter point, an important contributor to the debate on communications policy in the United States, Marc Porat, has proposed a useful, five-fold "selection rule" for identifying just such a policy agenda:

> Structure the policy agenda first by focussing on those policy issues which are driven by technology or by a convergence of several technologies.
>
> Focus on those technological issues that trigger the most far-reaching or deepest ideological choices. Put aside those issues where the ideological or value choices are remote.
>
> After selecting those issues that satisfy the first two criteria – technology push and vested with ideological ramifications – discard the issues that are relatively void of interindustry effects and focus on those with broad impacts. Select those issues whose impacts are likely to generate the greatest ripple effects.
>
> Begin with the presumption that market forces yield an approximation of fair and efficient solutions and look only at those issues in which the market solution is inadequate in a clearly definable way. The governmental intervention can then occur if a policy can be devised that is timely, targetted, and at a proper level of intensity.
>
> After selecting the issues that are (1) driven by technology, (2) are vested with ideological or value choices, (3) implicate the greatest number of industries and economic sectors, and (4) are not likely to be solved by market forces, allow the political feasibility test to structure the policy agenda.[6]

Drawing generally upon this good counsel and based upon both documentary research and some thirty interviews with industry and government officials, our paper seeks to identify the major issues confronting telecommunications policy and regulation in Canada over the next five to ten years and to examine the political factors underlying how these issues are likely to be raised and resolved. Specifically, we regard the following five issues as crucial:

> First, the role of the telecommunications sector in the emerging information business and particularly the threat of "by-pass" and the erosion of "boundaries";
>
> Second, the balance to be struck between monopoly, competition and regulation and specifically the problem separating monopoly and competitive services and markets;

Third, problems associated with telecommunications costing and pricing and particularly the cross-subsidization issue.

Fourth, the continuing need for jurisdictional and regulatory reform in the telecommunications field;

Fifth, the reconciliation of increased competition to traditional and current industrial policy concerns*.

Each of these issues will be examined in some detail with a view towards identifying and analysing options for the future.

Our paper begins with a discussion of the complex relationship between technological change, pressures for competition and the political process in Canada, highlighting what societal and institutional factors will be important in contributing to the "political feasibility" of change in the telecommunications field. Secondly, we attempt to "map" the telecommunications sector in Canada and its role in the evolving "information business" and provide a profile of the major players – their positions, interests and perceptions – on the future of telecommunications policy and regulation in Canada. The third section examines the four key issues identified above, the stakes involved in each issue, and how the major players are interacting on these issues. And finally, the fourth section of the paper analyzes various options whereby some of these issues might be raised and resolved as important matters of public policy in Canada.

"Big Wheels" and "Little Wheels": Technology, Competition and Political Feasibility in Canadian Telecommunications Policy and Regulation

In initiating a treatment of any important matter of public policy, it is encumbent upon the analysts to deal seriously with the question of causality. What is causing the current concern about the future of telecommunications policy and regulation in Canada? In what has become the conventional wisdom with regard to communications policy issues, Marc Porat presents technology as the "big wheel" that drives all the "little wheels" in this area, whether these be economic, ideological, political or whatever.[7] To be sure, observers are virtually unanimous in seeing technology as the controlling factor in promoting change within the telecommunications sector and the broader "information business". Advances in switching technology, digitalization and multiplexing techniques, the emergence of cable distribution systems as at least a partial alternative to the telephone system, microwave versus satellite transmission, the marriage of computers to communications, fibre optics, cellular radio, interactive information systems, and other technological developments continue to affect and transform the telecommunications system. Pressures for competition in the provision of telecommunications goods and services—as a composite expression of the economic, ideological and, to some extent, political factors which constitute the "little wheels"—are likewise important but, particularly in Canada, must probably take second-place in explaining the pace and pattern of change in the telecommunications field. Increased competition presents itself as both a strategy and a goal for changing the prevailing pattern of telecommunications policy and regulation but, historically, it has not had the same salience in Canada as in the United States. And finally, coming last in importance—but arguably so—is what Porat refers to as "political feasibility", namely the socio-political and institutional capacity to effect significant changes in the way in which telecommunications policy and regulation is evolving in Canada. Beginning with the prevailing pattern of policy and regulation, then, this section of the paper proceeds to discuss, in general terms, the technological factor, pressures for competition, and "political feasibility" as these are likely to affect Canadian telecommunications over the next decade.

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* Because of the size and scope of the problem and its more tangential relationship to the others identified, this issue would not be treated in detail in this paper but it will inform the analysis of the other four issues where appropriate.

Once Upon A Time . . .

Once upon a time, there existed a stable pattern of telecommunications policy and regulation in Canada. The telephone companies operated as monopoly providers of local and long distance service in a virtually non-competitive and loosely controlled environment. Each company was regulated either federally or provincially and, in certain cases, was owned by the provincial government. Local service prices were set as flat monthly rates and at levels low enough to encourage virtually universal access to the telephone network. Technological advances and increasing user traffic among other factors made rate increases unnecessary even over long periods of time. Telephone company and regulator worked together reasonably harmoniously within the framework of price and rate of return regulation, a relationship which reflected the weakness of conflicting interests, mutual non-interference and a general commitment to "the public interest". Whenever new telecommunications technologies or services did develop, the telephone companies would introduce them at their own pace and with minimal upset to the existing regulatory regime. And finally, underlying this situation was the fact that few entrants, either actual or potential, found it attractive to go into competition with the telephone companies in offering the range of telecommunications goods and services then available. While admittedly somewhat overdrawn and idealized, this felicitous pattern of policy and regulation continued to exist more or less until well into the 1970s across most of Canada.

The predominant characteristics of this pattern of policy and regulation can be set down briefly:

- Telephone companies came to be treated as "natural monopolies" within their given areas of operation as a result of the enormous economies of scale, scope, and of technological innovation involved in the provision of local and long distance service. Natural monopoly conditions are said to exist when one firm can reasonably service an entire market more efficiently than several competing firms, thereby avoiding unnecessary duplication of facilities and providing service at equal or lower cost.
- Because of the inherent tendency of all monopolies to overcharge and underserve, however, the telephone companies needed to be regulated by government in "the public interest" both to prevent the abuse of monopoly power as well as to achieve specific social or national objectives.
- Of particular importance among these national and social objectives were the goals of "universality" and a rough "equality of service" across the country, allowing for widespread access to the public-switched network on the part of as many potential residential and business users as possible, and these goals came to be shared in equal measure both by regulators and telephone companies alike.
- Telephone company pricing under regulated monopoly conditions was designed to make access to the network attractive and tended to follow "value-of-service" rather than "cost-of-service" pricing principles and to be applied on a "system-wide, flat-rate, and route-averaged" basis.
- The overall design of the rate structure was directed at meeting an overall "revenue requirement" which would guarantee a satisfactory rate of return to the telephone

companies sufficient to allow it to recover the costs of its investment as well as to make a profit that would satisfy their owners, whether they be private shareholders or governments.

- The provision of long distance as well as local service generated a complex system of "cross-subsidization" whereby business customers allegedly subsidize residential customers, urban subscribers subsidize rural subscribers and, most importantly, long distance telephone service is used to support local telephone service.
- The common interests and non-competitive relationship among the telephone companies themselves facilitated a successful on-going resolution of inter-company differences through a form of "private sector cooperative federalism" which allowed for the use of separate company facilities and settled revenue claims in the case of network usage by three or more companies providing joint services.
- All of this took place within a generally "depoliticized" environment where the role played by government in telecommunications policy and regulation tended to be a passive one, jurisdictional conflict between federal and provincial governments was largely absent, and government-industry relationships were minimal and generally harmonious.

The net result was a highly stable pattern of telecommunications policy and regulation which existed for most of this century and where government, regulators, users and the industry itself evinced little desire for change.

The element which has held together this remarkably stable pattern of telecommunications policy and regulation was a mind-set or ideology that became predominant among those involved in the telephone industry. This set of views and interests has been organized around two major values – an emphasis on customer service rather than price alone and an overriding concern for the growth and welfare of the public telephone network – and is summed up in Theodore Vail's slogan "One Policy – One System – Universal Service".[8] The emphasis on quality of service rather than price was one which arose largely from traditional common carrier regulatory principles of "just and reasonable rates" and "non-discriminatory access" as well as the all-inclusive nature of the customer's relationship with the telephone company. The continuing concern for the viability of the network gave a collectivist and even paternalistic orientation to thinking within the telephone industry, with a strong commitment to extension of universal service to all subscribers within a company's territory, even when this imposed large costs on the system as a whole. As well, it also justified a belief in the extensive use of cross-subsidies aimed at making equivalent level of basic service available system-wide to all subscribers regardless of the area of the country. Concurrently, the telephone industry has also been characterized by a strong esprit de corps among its employees, reflective in part of the substantial regard in which the telephone companies were held within their communities. While an esprit de corps is itself not unusual in individual companies, what is rather uncommon is that it has characterized all telephone companies within the industry and not just any single company. As well, the widespread practice of promotion from within the company and circulation of individuals within the industry has likewise tended to perpetuate and insulate this traditional set of values from changes in the broader economy. As one of our interviewees put it, "you can't even retire from this industry, because then you become a telephone pioneer".[9] And finally, this mind-set helps to explain the attitude taken by many telephone industry people towards its substantial accomplishments and prospects for continued success. In the widely-used idiom of telephone industry executives, which has also become their standard defence against the onslaught of technological change and increased competition, "if it ain't broke, don't fix it".

The Impact of Technological Change

Beginning in the mid 1970s, a rising tide of technological change began to undermine the foundations of the established policy and regulatory structure in telecommunications. The "big wheel" of technological change had been gathering momentum for several decades but the pace of change was much slower and more delayed in Canada. The impact of technological change on the telecommunications sector has been widely documented and one of the best recent descriptions is that provided by Hudson Janisch and Manley Irwin:

> First, information technology is multidisciplinary, multi-industry, multi-governmental and multi-national. Such technology blends a diversity of forces without precedent. There is no indication that this confluence of forces will diminish in the decade ahead.
>
> Second, information products are characterized by miniaturization, incredible speed and dramatic cost

> reductions. These, in turn, translate into lower priced products.
>
> Third, "smart" or "intelligent" products that store, process and transmit information now migrate to more and more users. The result is an added number and range of new information services available to the public. Today, we are experiencing a massive expansion in the number and type of providers selling information services to untapped markets.
>
> Fourth, sellers and products are generating an explosion of information distribution systems, a network of communications within buildings, between buildings, between corporate affiliates, nationally, locally and regionally and, in some cases, internationally. The pent-up pressures spawning such information networks appear irreversible in the decade ahead.
>
> Fifth, market entry of firms into industries and industries into sectors marks a fundamental shift in the structure of an information oriented economy.
>
> Sixth, boundaries separating diverse industries and corporations are softening and eroding. The conventional distinctions between products, services, hardware, industry and geographical locations are withering under technological assault. Indeed, the nomenclature of the past no longer suffices to describe the products, services and content of new offerings today and those in the future.
>
> Seventh, the rate of change associated with technological innovation impacts industry boundaries, costing, pricing and product life. There is no sign of a diminution of this velocity even though rates of acceleration vary from year to year.[10]

Technological change in telecommunications has come primarily from two sources—within the telecommunications sector itself and as a result of the convergence of telecommunications technology with computer technology. Changes from within the telecommunications industry itself have been largely, although not entirely, concerned with improved transmission and switching capability.[11] The overriding significance of these developments has been the extent to which they have made it possible for competitors to the telephone companies to appear and provide services using these new technologies. The spread in usage and availability of communications satellites with greater communications capacity and higher radiated power, transmitting increasingly on the 12 to 14 GHz bandwidth range, and concomitant advances in satellite receiver technology have produced a significant option vis-a-vis microwave transmission. As well, the spread and high penetration of coaxial cable transmission systems has also provided a potential alternative communications system with the capacity to compete with the local switched telephone network. And one further development, that of fibre optical transmission technology – with its enormously increased bandwidth capacity – seems likely to eventually replace coaxial cable and the paired copper wire and offers great potential for use in local and even longer distance transmission as well as for high speed computer-to-computer linkages. Most of the new transmission systems – whether satellite transponders, coaxial cable or optical fibre – are also likely to use the digital rather than the analog format. Digital transmission is more appropriate to the efficient integration of data, voice, and video services, allows for improved signal quality and better error control, and is also more compatible with the needs of a modern information society. Finally, although in no way exhausting the list of new developments, there has been the development of electronic or computer-controlled switching with its virtually instantaneous connections which is allowing for the introduction of many new telephone services such as call-forwarding and automatic callback.

Equally if not even more significant as a source of technological change has been the convergence of telecommunications and computer technologies.[12] Telecommunications systems are becoming increasingly integrated with computer systems to take advantage of their capacity for information storage, switching and general network control. At the same time, computers themselves can be interconnected by means of communications networks to form local area networks (LANs), providing users with access to more sources of information and computing capacity, and these LANs have the capacity to stand alone as communications networks for large institutional users. The increased use of information processing within communications systems results from the dramatic gains in cost, size and capability of computer equipment. These gains have flowed from major advances in chip technology and highly significant reductions in the costs and size of processing units and memory systems. As well, there have been important improvements in the cost and capabilities of the equipment that moves the information in and out of computer systems.

The net result of these developments—both within telecommunications itself and in terms of the convergence of telecommunications and computer technologies—has been to provide a massive impetus towards change, not only technically but in a public policy context. The buzzword in the telecommunications field since the early 1980s has been "bypass" which relates to the various ways in which recent technological developments can be utilized in new or better ways to get around established telecommunications networks. Both the threat as well as the reality of "bypass" is reputed to be substantial. While it is an open question as to whether there is likely to be additional major technological developments in the telecommunications field over the next decade or so, the continued elaboration and diffusion of existing technologies promises to be more than enough to sustain the pace of change. Technological developments are having a number of important consequences for public policy with regard to telecommunications. First of all, they make possible increased competition in the provision of telecommunications goods and services, not only within the traditional telecommunications sector itself but also among a wide range of communications and computer-based companies in related industries and markets, and serve to blur and even erode long-standing industry boundaries.[13] They also have the potential to serve as "the great deregulator" in their own right, challenging traditional concepts of regulation in the telecommunications field which seem to be too static and backward looking to cope with dynamic technological change.[14] And likewise, many but not all observers see this recent wave of technological change as having a homogenizing impact, destroying particularistic traditions and ways of doing things and imposing a degree of compulsion and conformity on nations and individuals rather than allowing them to use technology within the norms and values that have been predominant up to now.[15] These developments in the telecommunications field and their implications raise important questions as to exactly how "big" a "wheel" technology really is, how far Canadian policy-makers, regulators and the industry itself must bend in the face of technological advance, and to what extent Canadian public policy must change.

Pressures for Increased Competition

While the potential for competition directly as a result of technological change is clear, the real pressures for increased competition have come from other sources—economic, ideological, and political—and run head long into the established pattern of regulated monopoly in telecommunications. In Canada, this pattern of regulated monopoly has been very much in tune with the national tradition, especially in transportation and communications, which has seen government take an active part in promoting the development and integration of the Canadian nation-state and where the play of competitive market forces has been considerably more limited than in the United States. Except for its very early years, Canada never has had a significant degree of competition in the telephone industry.[16] Nevertheless, recent pressures for increased competition coming from actual or prospective entrants, the demands of the user communities and especially big business, and the "demonstration effect" of the US experience, not to mention the changing attitudes of many Canadian policy-makers and regulators, have already swung the balance in favour of competition. At the same time, there are distinctive features of the Canadian situation which will shape and influence pressures for increased competition in this country. Among these are a very different jurisdictional and regulatory structure where the scope of federal jurisdiction over interprovincial telecommunications and the role of the regulatory authority is much less clear, no telecommunications company that is equivalent in size or function to American Telephone and Telegraph (AT&T) in the United States either before or after divestiture, no effective anti-trust tradition which might be used as an alternative to regulation, as well as a historic disposition to accept greater government intervention in the economy.[17] Thus, present-day pressures for increased competition in telecommunications are insistent and powerful but their precise impact in the Canadian context is far from clear.

The case for increased competition as an alternative to regulated monopoly in the provision of telecommunications goods and services is practical as well as ideological. To be sure, competition usually gives the consumer more choice, may provide for a better allocation of resources and more reasonable prices, and results in a more efficient marketplace than under conditions of regulated monopoly. These assertions are disputed but not necessarily negated by counter-claims that certain forms of competition—by serving only selected, high volume, high profit markets—will simply lead to "cream-skimming" and a net deterioration in the quality of service.[18] On a more practical level, however, the case for as much competition as possible is a strong one. Given developments in telecommunications technology and the convergence of computers and communications, the maintenance of effective regulated monopoly conditions would be difficult, requiring an extension of government into areas of the economy such as the computer industry that have thus far gone unregulated. As well, competition is clearly in tune with the ideological climate of the times, whether it be in Canada or elsewhere in the Western world, while monopoly and the "dead hand" of regulation is just as clearly out of tune.[19] It should be recognized, however, that competition is very much a problematic term, allowing for different degrees and forms of competition and with or without a substantial element of continuing regulation.

The trend towards increased competition has been greatest and most clear-cut in the United States where both the Federal Communications Commission (FCC) and the courts have been moving for more than two decades towards allowing greater competition in the telecommunications sector. This trend can be illustrated by brief reference to decisions with respect to terminal attachment, private lines, enhanced services, long distance competition, and industry structure.[20] In the first place, interconnection of subscriber-owned equipment with the public-switched network was liberalized through a series of court decisions and FCC pronouncements culminating in the 1968 Carterfone decision which allowed virtually unrestricted terminal attachment. Second, the provision of private lines was opened up to competition commencing with the 1959 FCC Above 890 decision which made available a limited number of frequencies for privately-owned communications services and the subsequent 1969 FCC decision allowing MCI and other long-distance companies to compete actively against AT&T. Thirdly, in the Computer I and II decisions, the FCC established a working distinction between "basic" and "enhanced" services with the latter to be deregulated and opened to competition but with AT&T permitted to offer enhanced services only through a separate subsidiary. Fourthly, in 1980, following the important *MCI v. FCC* judgment three years earlier, the FCC moved directly to allow all interstate telecommunications services to be provided competitively. Finally, in 1982, there was Judge Greene's court-ordered divestiture of AT&T and the settlement of the Department of Justice's anti-trust action which resulted in the local service facilities being separated off and domiciled in the seven new regional operating companies while AT&T retained the Longlines division as well as its equipment manufacturing and research and development functions so as to more readily permit effective competition in long distance and enhanced services as well as in equipment manufacturing. The overall impact of these regulatory and judicial decisions has been to inject a substantial element of "chaos" into what used to be stable "regulated monopoly" conditions and to push the US telecommunications sector beyond "regulated competition" towards more extensive and purer forms of competition.[21]

The "demonstration effect" of the US experience on Canadian policy-makers and regulators, at least at the federal level, has already been considerable as they have been persuaded, in varying degrees, to respond similarly to pressures for increased competition.[22] Since the late 1970s, the federal government and especially the Canadian Radio-Television and Telecommunications Commission (CRTC), has led the way by allowing for increased competition – but by no means as extensive competition – in many of the same areas as in the United States, even though provincial governments and regulators have not always followed that lead. In the case of private lines and some data communications services, CNCP Telecommunications and its predecessor companies have since the 1950s operated their own microwave network to offer services in competition with Telecom Canada and the major telephone companies across the country. A watershed decision by the CRTC in 1979 allowed CNCP Telecommunications to gain interconnection with the public switched network under federal jurisdiction, although provincial regulators have often been reluctant to extend this privilege to their own jurisdictions. As well, in 1980, the CRTC also permitted customer ownership of terminal attachment devices on an interim basis within federal jurisdiction and, in its final decision in 1982, this was extended to include the main set, but again provincial regulations on terminal attachment vary considerably. With regard to enhanced services, the CRTC has followed the FCC in separating "basic" from "enhanced" services but has not yet prescribed any requirement for separate subsidiaries. Moreover, the federal Department of Communications has also recently taken a more favourable stance towards increased competition, allowing the Bell Canada reorganization to proceed, licensing competing companies to provide cellular radio service, and liberalizing satellite uplink ownership. While the CRTC has been the main protagonist in the introduction of increased competition, the federal government has also become more active and some provincial governments and regulators are also cautiously moving in that direction.[23]

Thus, as of the mid-1980s, Canada already sustains a modest degree of competition within the telecommunications sector – what is perhaps best described despite its seeming contradiction as a condition of "regulated competition"[24] – in spite of jurisdictional and regulatory rigidities and considerable unevenness across the country. "Regulated monopoly" in the terms which we have described it earlier in this section still exists but is relevant to a declining though still significant portion of the Canadian telecommunications sector. As well, the prospect is definitely for greater competition in the years to come as the "demonstration effect" of the US experience, for better or worse, comes to be understood more widely across the country and as further pressures for increased competition – most immediately evident in the CNCP Telecommunications application to provide competitive long distance service in Ontario, Quebec and British Columbia – continue to mount. Hudson Janisch has recently set out a number of reasons why he believes that increased competition – more or less following the same lines as has developed in the United States – is inevitable:

> My thesis is that we will be greatly influenced by these developments for six related reasons: first, because of the general similarity in the provision of telecommunications services in the two countries; second, because of the advent of competition in countries other than the United States; third, because competition has come about as a consequence of the adoption of common technology and not unique ideology; fourth, because of the irrelevance of national boundaries in an electronic age; fifth, because we have already crossed the divide with respect to competition in Canada, and sixth, because of a near total lack of institutional preparedness, the user demands of big business will prove to be irresistible.[25]

There is considerably less agreement, however, on what form increased competition will take in the Canadian context and how it will affect the existing telecommunications sector and related industries and markets. While policy-makers and regulators – as well as the industry itself – may in certain cases attempt to limit or shape them to fit Canadian traditions and circumstances, the pressures for increased competition are building and, combined with the range of new technological possibilities available, are too strong to be easily dismissed or long delayed.

"Political Feasibility" as a Factor in Telecommunications Policy and Regulation

The last element which Mark Porat identifies in his "selection-rule" for a telecommunications policy agenda – and the one which we wish to focus on specifically – is what he refers to as "political feasibility". The basic model which underlies his analysis of communications policy issues is a mechanistic one in which changes in technology are regarded as the "big wheel" which drives all the "little wheels" whether these be economic, social or political. Prices, institutions, policy, the law, public opinion or whatever are each important elements of communications issues and increased competition in the telecommunications sector, as we have been using it, is a particular composite of all of these elements which together constitutes at least a "little wheel". "Political feasibility", or what may be considered as the institutional and socio-political capability to effect change in the existing way of doing things, includes a variety of factors which are generalized features of all liberal democratic governments but is also very much specific to the particular Canadian situation. Marc Porat describes the role played by "political feasibility" as follows:

> After great deliberation about the shape, purpose and contents of the cart, we finally arrive at the horse. To those in the Washington environment (and presumably the Canadian one as well), the bottom line to any question is political feasibility: Can it be done? What is the payoff? What are the liabilities? I hope that by putting this question last and not first, the discourse has been broadened to include the distant horizon of social values. Those impatient with the reflective license implied in the first four steps can now relish their just reward: Politics is the bottom line.[26]

Thus, the impact of technological change on the future of telecommunications and the movement towards increased competition in the provision of telecommunications goods and services are dependent in the final analysis on some conception of "political feasibility".

What constitutes "political feasibility" in the Canadian context? What are the major political institutional and socio-political concerns that will shape decisions, what action can effectively be taken, and who will be the winners and losers? All of these elements must be taken into account in assessing "political feasibility". Specifically, there would seem to be at least five key components of "political feasibility" in the Canadian context.

> First of all, there is the capacity of the regulatory system-federal and provincial, administrative and political – to effect change on the major issues affecting

> the future of telecommunications policy and regulation.
>
> Secondly, the particular configuration of interests and ideas which come to be articulated on any particular issue is important as well as the effectiveness of groups and individuals in representing those interests and ideas.
>
> Third, jurisdiction over telecommunications in Canada is divided between federal and provincial governments and this means that agreement among policy-makers on the basic direction of change and coordination and cooperation among separate jurisdictions in dealing with many important issues is highly desirable.
>
> Fourth, "bureaucratic politics" which refers to the way in which power is exercised within and between institutions or organizations is obviously important.
>
> And finally, there is the matter of public opinion which influences the electoral, partisan and ideological dimensions of telecommunications issues.

Each of these components is important in its own right and, together, they constitute a rough approximation of "political feasibility" in the Canadian context.

The capacity of the regulatory system in Canada to respond to rapidly-changing technologies and pressures for competition has been the subject of considerable speculation. The regulatory system is widely believed to be overloaded and regulation, with its emphasis on policing methods and adversarial procedures, is claimed to be an increasingly inappropriate policy instrument in these new circumstances.[27] Others view the regulatory system in terms of "capture" and point to the cycle which sometimes works itself out whereby a regulatory agency tends over the years to be captured by the industry it regulates and thus becomes unable to respond effectively to the need for change.[28] Still others see the regulatory system more in terms of "producer protection" and how regulation itself becomes a valuable prize whereby private interests can protect themselves against new entrants and market instability.[29] And more recently, it has become fashionable to treat regulation as a means of redistributing income from consumers to producers of regulated goods and services as well as among different classes of consumers and this "cross-subsidization game" becomes a serious obstacle to change and an impediment to the efficient operation of the marketplace.[30] The regulatory system in Canada – federal as well as provincial and comprising policy-makers, regulators themselves and interest groups – varies considerably across Canada in terms of its sophistication and procedures but has at times been subject to some of these deficiencies. Thus, whatever its particular proclivities and disabilities, there are serious questions as to whether the regulatory system and regulation as a policy instrument can be expected to respond effectively to the challenges posed by technological change and increased competition.

A second component of "political feasibility" affecting the future of telecommunications regulation in Canada concerns the role of interest groups within the regulatory and political processes. Technological change and increased competition are generating a greater pluralism of interests and ideas within the telecommunications policy arena, making effective interest group representation more important at the same time that it makes consensus-building among the various views and interests even more difficult to achieve. The proliferation of interest groups operating in the regulatory process and the broader telecommunications policy arena includes not only the telephone companies and their traditional competitors but also a variety of new entrants seeking the right to provide telecommunications goods and services, business and institutional users aiming at reducing their telecommunications costs, and public interest groups attempting primarily but not exclusively to represent the interests of residential customers. Powerful established interests as well as potential entrants into the Canadian telecommunications sector – often very small and specialized companies – both seek and are attracted by the dropping of regulatory barriers to entry and the expansion of technological possibilities and market opportunities and are becoming increasingly active participants in the regulatory and political processes.[31] Business and institutional users of telecommunications goods and services – whether these be banks, multinational oil companies, hospitals and universities, governments themselves, or user associations representing a large number of interested companies – likewise have an equally strong economic incentive and organizational capacity to engage in active lobbying.[32] Residential consumers, however, have not as yet been effectively organized as an interest group and, with the exception of a few public interest groups, have suffered from the "logic of collective action" in that the costs involved in terms of organization and energy are not commensurate with the benefits to be gained or maintained and which accrue, in any case, indiscriminately to all telecommunications consumers.[33] Moreover, with increasing frequency, interest group activity on telecommunications issues has taken on an undertone of ideological struggle as supporters of the traditional regulatory structure with its substantial benefits battle with those who advocate more competitive solutions. Given the new pluralism of interest group representation and its more ideological tone, it has become increasingly difficult for governments to build the underlying consensus among major interest groups upon which effective policy and regulation must be based.

A third prime component of "political feasibility" in the Canadian context relates to the autonomous but interdependent role which the federal and provincial governments play in telecommunications policy and regulation. Divided jurisdiction between the two levels of government has had a profound impact on policy and regulation in Canada over the past decade.[34] It is not only the fact that the federal government and seven of the ten provincial governments exercise jurisdiction over the major telephone companies but also that the number of telecommunications providers across the country is multiplied and the regulatory agencies which oversee these companies have become increasingly active and independent. The result of these developments is to place an extremely high premium on private sector as well as public sector mechanisms for coordination and cooperation. Policy initiatives and regulatory action taken at the federal level are not always followed up by their provincial counterparts and at the same time provincial governments and regulators complain about the adverse impact that federal initiatives and actions can have on legitimate provincial concerns. Potential entrants into the telecommunications sector are frustrated by different regulatory requirements in different provinces and telecommunications providers and users find it difficult to get any sense of overall policy direction.[35] This complicated jurisdictional and regulatory situation has been the subject of several attempts at reform and improvement over the past decade but without any real success. Both the federal and the provincial governments – including even those which do not have jurisdiction and regulatory control over the major telephone companies operating within their boundaries – have all in the past possessed an effective "veto" over whatever they regarded as undesirable constitutional change and little recourse other than argument and persuasion to break any impasse. Likewise, there has been little room for the role of "third parties" whose intervention might be directed at spurring initiatives or reinforcing positions taken by one or other level of government. Thus, policy-makers and regulators at both the federal and provincial levels – not to mention telecommunications providers and users – find themselves "partners in a game without masters"[36] and the impact of technological change and increased competition can only serve to exacerbate the prevailing conflicts. Barring dramatic developments on the jurisdictional front but assuming continued pressure on policy-makers and regulators at both levels to move towards change, "political feasibility" on many telecommunications issues will require that the legitimate concerns and sensitivities of both levels of government are taken carefully into account.

"Bureaucratic politics" is also a key factor in assessing the "political feasibility" of effecting change in telecommunications policy and regulation. Political scientists are fond of pointing to the way in which the organization of government and bureaucratic behavior can influence, distort and sometimes stymy public decision-making on important issues.[37] "Bureaucratic politics" – a term having a particular connotation associated with the more free-wheeling nature of the American political system – is, of course, also operative in Canada where Cabinet, government departments, regulatory agencies and even Parliament all seek to influence policy and regulatory outcomes. In particular, it tends to take place on the interface between the formal principles underlying the operation of the governmental system and more informal behaviour arising out of the particular views and interests of the various parts which make up the whole. Government departments may attempt to assert their national mandate as a way of imposing order on the confusion created by divided jurisdiction.[38] Independent regulatory agencies may take on a substantial policy-making role in addition to their rule-making activities because of an absence of clear policy direction and Parliament may be effectively frozen out of major decisions while Cabinet and individual ministers become the target for industry lobbying.[39] Moreover, politicians and bureaucrats within the same department or agency can sometimes hold different views as to how policy-making or regulation should be undertaken. It is this normal conflict within and between bureaucratic structures within the same government over the direction and substance of public policy which is at the core of "bureaucratic politics".

The final component of "political feasibility" is obviously public opinion in the various forms in which it influences the political process. Telecommunications policy and regulation until recently has been premised upon a generally satisfied public which didn't really care much about the telephone system except when it didn't work or rates went up too quickly. Any prospect of a threat to universal service or very substantial increases in basic local service could change that situation dramatically. As with the explosive response to gas price increases in the early and late 1970s and more recently to telephone rate increases in the wake of the AT&T divestiture in the United States, the reaction may well be in excess of what would seem warranted because of the extent to which low-cost, flat rate local service has become central to our way of living and working. Public opinion as a political factor can operate on several levels. First of all, there is the extent to which telecommunications policy and regulation could become an electoral issue which might bring down governments in Canada, although this is probably unlikely except perhaps in extreme situations in certain provinces. Secondly, telecommunications regulation could take on partisan dimensions if the major political parties at the federal or provincial level were to adopt strikingly different positions on the issue. Thirdly, telecommunications issues – even though they are largely technical matters – might come to have ideological connotations primarily along a competition-monopoly axis, which filter down through the opinions of experts and interest groups to the public at large.[40] Thus, public opinion in the various forms which it can take could potentially be quite important in shaping debate and deliberation on an issue like telecommunications policy and regulation and, for better or worse, contribute to the "political feasibility" of effecting change.

To sum up, technological advance and pressures for competition are clearly the "big wheels" and "little wheels" which drive change in the area of telecommunications policy and regulation. Technology has been presented as the "big wheel" mainly because of the dynamic character of its impact both in the past and likely in the future. Pressures for competition, though treated as a "little wheel" and a composite of several factors, is also highly important in that they are often the way in which technology manifests itself in the economic and political process. In the final analysis, however, the important issues facing telecommunications policy and regulation and the options for the future which they generate must be examined in terms of "political feasibility". Paraphrasing a famous political philosopher of several centuries ago and perhaps the first real political consultant, we must concur with Machiavelli that "there is nothing so difficult as the introduction of a new order of things".

Providers, Users, and Public Decision-Makers: A Guide to the Major Players

Before proceeding to examine the key issues which will shape the future of telecommunications policy and regulation in Canada over the next five to ten years, it is important to identify and profile the major players in the piece. For purposes of analysis, we have divided this rather considerable cast of characters into three categories: providers of telecommunications services and their suppliers, users of telecommunications goods and services and those groups which speak for their interests, and public decision-makers – including both policy-makers and regulators – at the federal and provincial level in Canada. Who then are these major players? What positions have they staked out on the key issues? Where do their real interests lie? What are their perceptions of the future of telecommunications regulation in Canada? It is to these questions that we now turn.

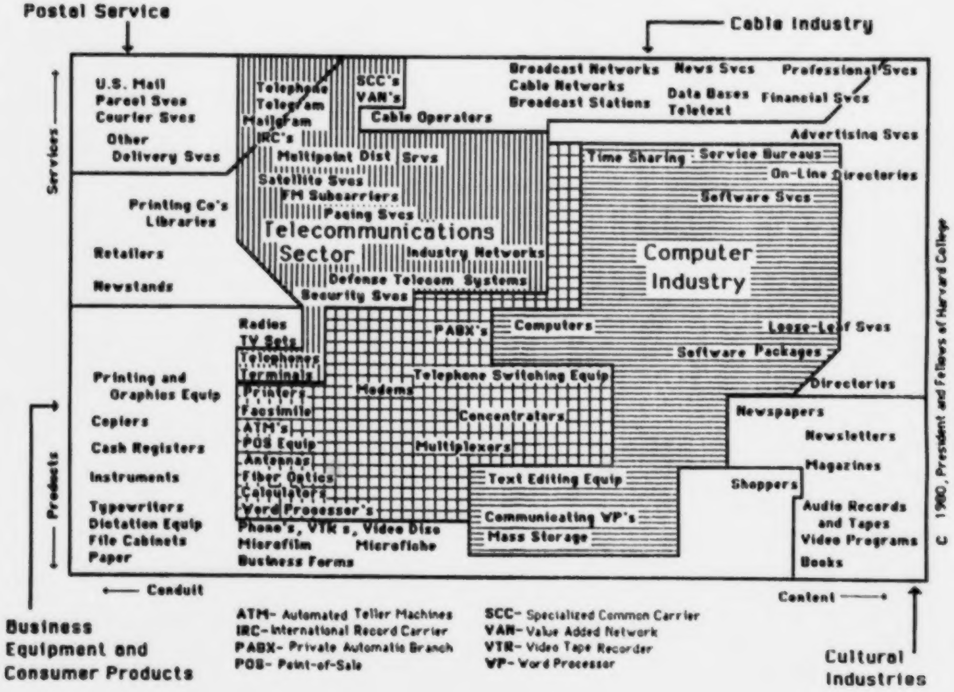
Mapping the Territory: A General Overview

Let us begin to develop our profile of the major players by attempting to situate the Canadian telecommunications sector within the context of the emerging "information economy".[41] Much has been made of this concept during the late 1970s and early 1980s and it has come to be widely accepted by many of the major players themselves as the relevant context within which industry strategies and government action must be framed. For example, one recent report suggests that, using standard definitions and classes of data, 47 percent of Canada's Gross Domestic Product in 1981 – as opposed to 35 percent in 1971 – is now part of the "information economy" and that the latter is growing much more quickly than the more traditional elements of the national economy.[42] Such broad-guage analysis is suspect to some extent, however, because of the indivisibility of the sub-categories used and is not particularly useful in its specific application to developments in the telecommunications field. A more interesting approach which can be used specifically to examine the role of the telecommunications sector within the "information business" has been pioneered by the Harvard Program on Information Resources Policy. Anthony Oettinger and his colleagues look at the "information business" in terms of the major technologies whereby information is created and disseminated in modern society and have developed a matrix of some eighty technologies upon which long-term trends and recent developments can be mapped.[43] Such a "mapping" exercise can be used to demonstrate multiple and rapid technological advance, shifting industry boundaries and the range of activities of individual companies, as well as the locus and impact of government regulation. In this regard, "players" are specified in terms of their role in utilizing particular technologies while the "stakes" are defined in terms of the interests of major players and their implications for the overall "information business".

Figure 1 utilizes the graphic representation of the "information business" to map the Canadian situation and presents each of the major industry actors in Canada in terms not only of their major areas of involvement but also the rough magnitude of each industry as evidenced by annual revenues relative to other industry actors. As can be readily seen, the telecommunications sector[44] presently dominates the "information business" and is increasingly being drawn into competition over particular products or services with other industry actors like the cable companies, the computer hardware and services industries, and the newly-emergent interconnect industry as well as potentially with the post-office, the business equipment industry, the newspaper and publishing industry, and the broadcasting industry, among others. As well, within the Canadian telecommunications industry itself, limited internal competition is already well established with regard to certain products or services such as data communications, private line communications, paging services and mobile communications, as well as in the manufacture and sale of telecommunications equipment and terminal attachment devices. It should be stressed that there is nothing fixed and unchangeable about either the range of actors identified or the space which each occupies, since volatility and variability are very much a central characteristic of the "information business".

The telecommunications sector in Canada is divided – quite unequally in terms of size of revenues – between the traditional telephone industry which provides local and long-distance service as well as a variety of private and other telecommunications services and the more specialized common carriers which presently provide only private telecommunications and other services.[45] Table 1 provides basic information on the telecommunications carriers in Canada. Separate telephone companies across the country provide local and long-distance service on a monopoly basis within each province and territory, irrespective of whether such service is regulated federally as in the case of Bell Canada in Ontario and Quebec and BC Tel in British Columbia or provincially and even municipally as in the other seven provinces. Moreover, as Figure 2 demonstrates, the situation is complicated even more by the presence within the industry of both private sector, shareholder-owned companies in many

Figure 1
The Information Business


Postal Service
Cable Industry
U.S. Mail
Parcel Svcs
Courier Svcs
Other Delivery Svcs
Telephone
Telegram
Mailgram
IRC's
SCC's
VAN's
Cable Operators
Broadcast Networks
Cable Networks
Broadcast Stations
News Svcs
Data Bases
Teletext
Professional Svcs
Financial Svcs
Advertising Svcs
Multipoint Dist Srvs
Satellite Svcs
FM Subcarriers
Paging Svcs
Telecommunications Sector
Industry Networks
Defense Telecom Systems
Security Svcs
Time Sharing
Service Bureaus
On-Line Directories
Software Svcs
Computer Industry
Printing Co's
Libraries
Retailers
Newstands
Radios
TV Sets
Telephones
Terminals
Printers
Facsimile
ATM's
POS Equip
Antennas
Fiber Optics
Calculators
Word Processor's
Phone's, VTR's, Video Disc
Microfilm
Microfiche
Business Forms
PABX's
Computers
Modems
Telephone Switching Equip
Concentrators
Multiplexors
Text Editing Equip
Communicating WP's
Mass Storage
Loose-Leaf Svcs
Software Packages
Directories
Newspapers
Newsletters
Magazines
Shoppers
Audio Records and Tapes
Video Programs
Books
Printing and Graphics Equip
Copiers
Cash Registers
Instruments
Typewriters
Dictation Equip
File Cabinets
Paper
Services
Products
Conduit
Content
Business Equipment and Consumer Products
Cultural Industries

ATM- Automated Teller Machines
IRC- International Record Carrier
PABX- Private Automatic Branch
POS- Point-of-Sale

SCC- Specialized Common Carrier
VAN- Value Added Network
VTR- Video Tape Recorder
WP- Word Processor

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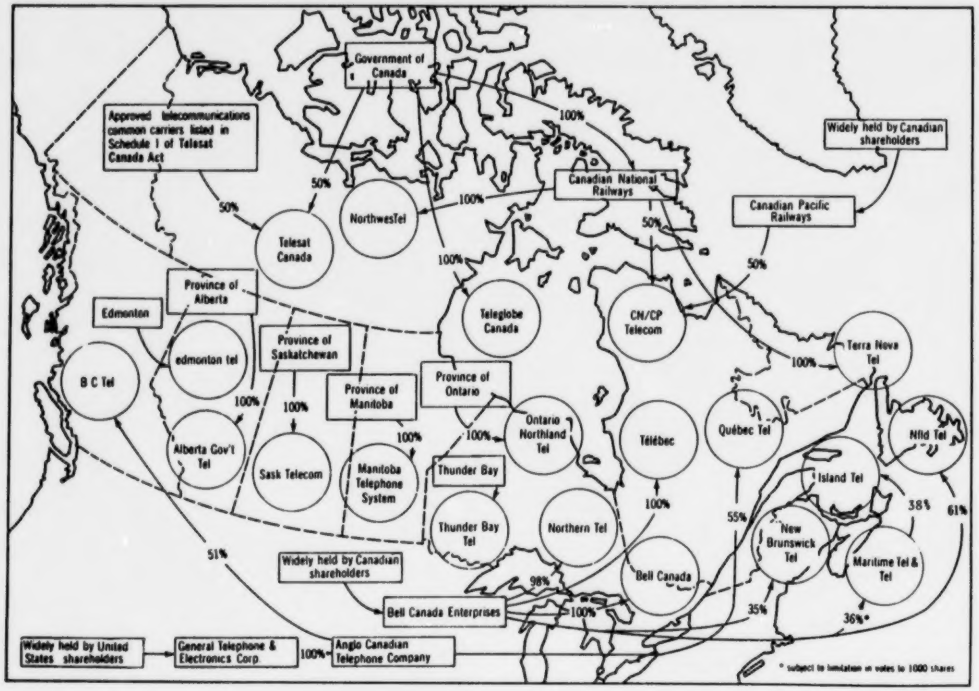
Table 1
1982 Telecommunications Carriage Market by Company[1]

	Total Operating Revenues ($ millions)	Share[2] (%)
TransCanada Telephone System		
BC Tel[3]	1,009.4	12.0
Alberta Government Tel	825.3	9.8
Saskatchewan Tel	295.7	3.5
Manitoba Tel System	244.6	2.9
Bell Canada[3]	4,359.3	51.9
New Brunswick Tel Co	191.50	2.3
Maritime Tel and Tel	235.9	2.8
Island Tel	26.5	0.3
Newfoundland Tel	109.6	1.3
Telesat Canada	59.0	0.7
Subtotal	7,356.8	87.6
CNCP Telecommunications	302.2	3.6
Other Telecommunications		
Edmonton Telephones	151.1	1.8
Northern Tel	21.1	0.3
NorthwesTel	48.9	0.6
Québec Tél	139.6	1.7
Télébec Ltée	80.9	1.0
Terra Nova Tel	33.2	0.4
Thunder Bay Tel	16.0	0.2
Subtotal	490.8	5.8
Teleglobe Canada	170.2	2.0
Radio common carriers	75.0	0.9
TOTAL	8,395.0	100.0

Source: Annual reports and DOC estimates

Notes:
1. Revenues for the radio common carriers are not broken down by company.
2. Because of rounding, columns may not add up to the total indicated.
3. Telecommunications operations only.

Figure 2
Ownership of Canadian Telecommunications Common Carriers

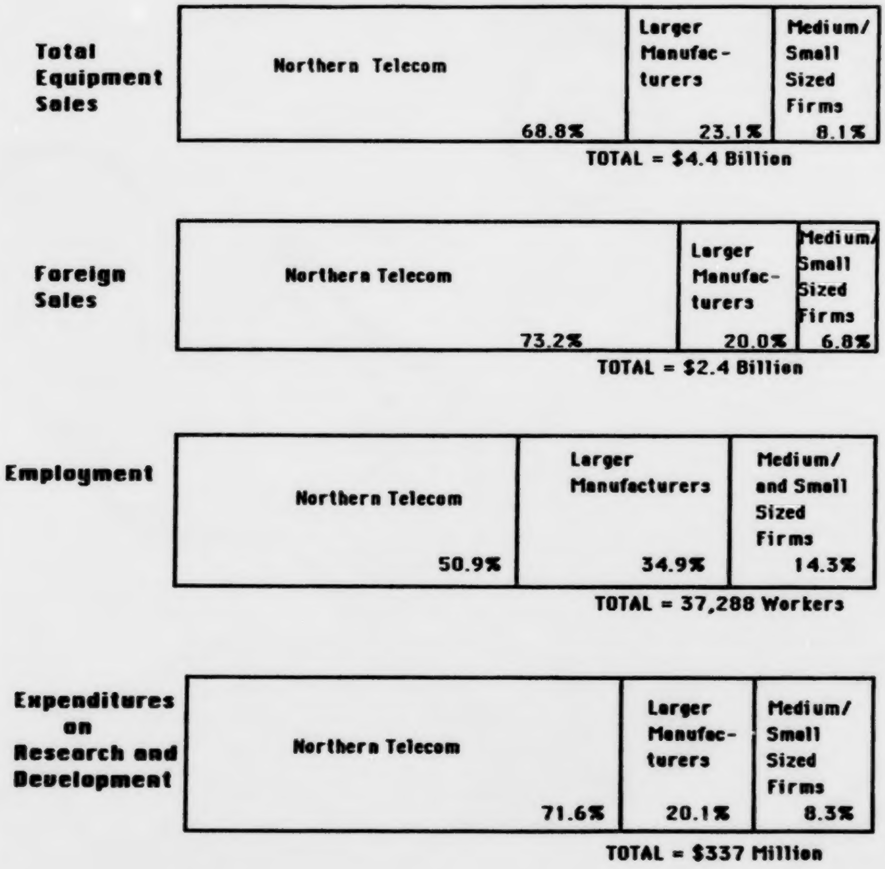

Government of Canada
Approved telecommunications common carriers listed in Schedule I of Telesat Canada Act
50%
50%
100%
100%
100%
Telesat Canada
NorthwesTel
Canadian National Railways
50%
Widely held by Canadian shareholders
Canadian Pacific Railways
50%
Teleglobe Canada
CN/CP Telecom
Province of Alberta
Edmonton
edmonton tel
100%
Alberta Gov't Tel
B C Tel
Province of Saskatchewan
100%
Sask Telecom
Province of Manitoba
100%
Manitoba Telephone System
Province of Ontario
100%
Ontario Northland Tel
Thunder Bay
Thunder Bay Tel
Northern Tel
Télébec
100%
Québec Tel
55%
Terra Nova Tel
100%
Nfld Tel
Island Tel
38%
61%
New Brunswick Tel
Maritime Tel & Tel
35%
36%*
Bell Canada
51%
Widely held by Canadian shareholders
Bell Canada Enterprises
98%
100%
Widely held by United States shareholders
General Telephone & Electronics Corp
100%
Anglo Canadian Telephone Company
* subject to limitation in votes to 1000 shares

provinces as well as government-owned public enterprises in Alberta, Saskatchewan and Manitoba. However, the forces of integration within the industry are substantial. Bell Canada alone accounts for roughly 60 percent of service and operating revenues in Canada and its preeminence within the industry is even greater than its ranking in terms of revenues would indicate because it holds a sizeable interest in the telephone companies in Atlantic Canada. Horizontal integration is further provided by Telecom Canada (formerly the TransCanada Telephone System) – a consortium of all the major telephone companies – which coordinates the provision of long-distance service unregulated directly either by the federal or provincial governments and also markets its own private telecommunications services.[46] Finally, vertical integration within the industry is significant because Northern Telecom – long the monopoly equipment supply subsidiary of Bell Canada – and Bell-Northern Research – their jointly-owned research and development subsidiary – are industry leaders in their respective areas while Microtel has most recently been established to serve the same dual purposes for BC Tel.[47] Whatever the particular company or jurisdiction involved, the provision of local telephone service has traditionally been regarded as a case of "natural monopoly" within a given territory and, as such, subjected to public utility regulation on a price and rate of return basis and shielded to some extent from competition even in areas like long distance service and some private communications which go beyond the local service mandate.

In addition to the major telephone companies, the telecommunications sector also comprises more specialized common carriers which are considerably smaller in size but increasingly important players in the "information business". Table 1 also provides information on these specialized common carriers. First of all, CNCP Telecommunications – a unique partnership involving a federally-owned Crown corporation and a private, shareholder owned company – has long been the monopoly provider of telegraph service and, since the 1950s, has offered a wide range of private line and data transmission services in direct competition with similar services provided by Telecom Canada. Its competitive position, however, has until recently been undermined by restrictions on interconnection to the local phone system and joint usage of facilities owned by the telephone companies under federal regulation and continues to be limited by similar practices engaged in by several of the provincial governments.[48] Secondly, Telesat Canada, owned half-and-half by the federal government and all the major telecommunications companies, was established in 1970 as a mixed corporation with a statutory monopoly over the provision of satellite communications services in Canada. Subsequently in 1977, the federal government allowed it to become a full member of TCTS (now Telecom Canada) and it continues to operate primarily as a "carriers' carrier".[49] And finally, there is Teleglobe Canada, a more traditional Crown corporation, originally reporting directly to the Minister of Communications but more recently operating as a subsidiary of the Canadian Development Investment Corporation, which provides submarine and satellite transmission for overseas communications and serves as Canada's agent within the international communications satellite network. Each of these specialized common carriers operates within areas of the telecommunications sector where their interests overlap and do not always coincide with those of the telephone companies.

Closely related to the provision of local and long-distance telephone service in Canada is an extensive telecommunications equipment manufacturing industry. Firms within this industry are engaged in developing and supplying the switching, transmission and terminal devices which the telephone companies and their subscribers require. Table 2 provides information on the major telecommunications equipment suppliers in Canada. Northern Telecom and, to a considerably lesser extent, AEL Microtel – both subsidiaries of the two largest telephone companies – are the largest suppliers of a wide range of telecommunications equipment in Canada and together these firms control about 75 percent of the total Canadian market. However, in recent years, a number of middle range and smaller firms have emerged in particular sub-sectors of the market. Mitel, Gandalf and Norpak manufacture advanced switching and related equipment; Spar Aerospace and Canadian Marconi supply satellite communications equipment; Canada Wire and Cable and Phillips Cables serve the transmission area; and several large foreign companies like ITT, Plessy and others also manufacture, assemble or import particular product lines for sale in Canada. Vertical integration has long been the dominant feature of the industry, allowing for the achievement of the critical mass required for research and economies of scale in manufacturing but also inhibiting the emergence of competition and perhaps restricting innovation. Research and development remains crucial to the telecommunications equipment industry and Bell – Northern Research is the largest private sector spender on research and development in Canada, while many of the middle-range Canadian firms are also gradually expanding

Table 2
Principal Characteristics of Telecommunications Equipment Manufacturers in Canada, 1982
($ millions)



Source: Adapted from DOC, *The Supply of Communications Equipment in Canada*, (May 1984).

their R&D funding.[50] Recently, as well, there has been a marked trend towards expansion of the export market for Canadian telecommunications equipment and exports are particularly crucial to many of the large and middle-range companies which find the domestic market too limited in scope.[51] While the telecommunications equipment industry is not subject to direct regulation at either the federal or provincial level, it does receive tax and incentive support from government and some of its practices have become the target of anti-combines investigation.

Within the broader "information business" in Canada, several established industries as well as a number of recent entrants are increasingly competing with the telecommunications industry in particular markets for products and services. One such area of competition is the recently-emergent interconnect industry which developed only after 1980 to supply terminal attachment and related equipment to business and residential customers.[52] This new industry was effectively born out of deregulation at the federal level, which has not always been extended to all provinces, and has cut significantly into a market which had previously been largely monopolized by the telephone companies and their equipment suppliers. The industry is largely composed of small to medium-sized firms, the majority of which are Canadian-owned, and which offer a variety of products and services like call forwarding, automatic dialing, and other services which go beyond basic telephone services. A variety of recent entrants like Canadian Telecommunications Group Ltd. (CTG) and Rolm have emerged to compete with the hurriedly-created telecommunications common carrier subsidiaries like Bell Communications Systems Incorporated (BCSI) and Telecommunications Terminal Systems (TTS) in a rapidly growing market and, as shown in Table 3, total industry revenues in 1983 were $270 million.[53] Despite continued success and the formal absence of regulation, the interconnect industry confronts regulatory restrictions on competition especially within certain provinces and continues to operate under the large shadow cast by the telecommunications carriers.

The cable industry in Canada, traditionally treated as an extension of the broadcasting system in providing basic cable service and now pay-TV, is also increasingly coming into competition with the telephone companies. Utilizing its own now highly-subscribed transmission system in most areas of the country and taking into account further technological improvement as a result of fibre optics and an interactive capability, the industry sees itself as in part an alternative common carrier to the telephone companies and, either through cooperation or competition, the provider of a wide range of non-programming services from remote sensing to videotext to teleshopping.[54] After a decade of steady growth, the cable industry generated some $468 million in operating revenues in 1982 and is composed of about 300 companies, the great majority of which are small and operate as local monopolies within their assigned territories. Figure 3 provides information on the major cable companies. Ownership of cable distribution systems has to some extent been kept separate from ownership of broadcasting and media companies but there has been an increasing trend towards industry concentration with the emergence of such large firms as Rogers Cablesystems, Maclean Hunter and Le Groupe Videotron, so that the top three cable companies account for over 65 percent of subscribers and just over 50 percent of industry revenues. Unlike the telephone companies, however, which likewise have effective territorial monopolies and are regulated as public utilities, the cable companies have been left more or less free to exercise their monopoly position subject only to formal rate approval as a condition of licence and regulatory directives on certain policy matters such as stations to be carried or commercial deletion and program substitution.[55]

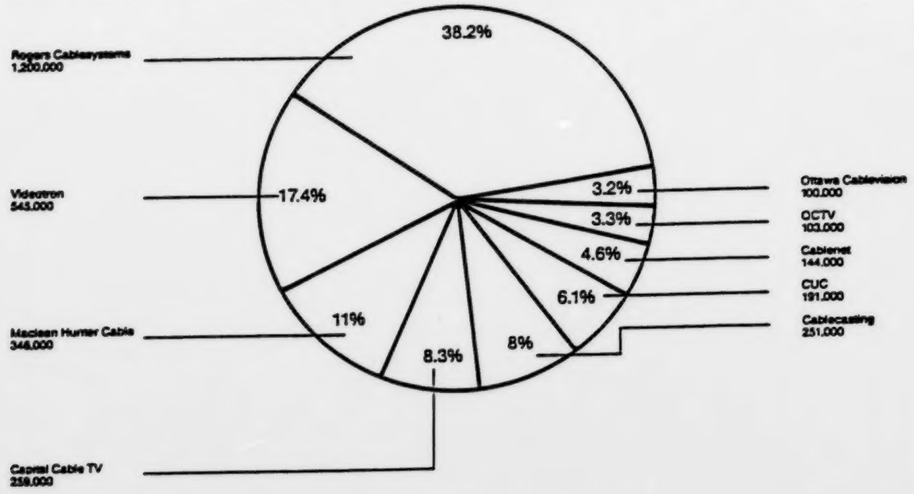
Table 3
Revenue and Market Shares of Major Canadian Interconnect Companies ($ Millions)

Company	Revenue 1981	Revenue 1982	Revenue 1983	Growth 1983/82	Market Share 1983
BCSI	$10.9	$21.9	$38.1	74%	14.7%
CTG	12.9	32.1	34.4	7	13.2
RDLM	8.0	15.0	23.0	53	8.8
TTS	-	7.7	19.7	156	7.6
Ericsson	-	8.9	8.4	(6)	3.2
Eastern Indep.	-	8.0	7.0	(14)	2.7
ITT Bus. Comm.	-	6.2	7.0	13	2.7
Santel	-	5.5	7.0	27	2.7
Others	-	82.7	115.4	40	44.4
TOTAL	116.0	188.0	260.0	39	100.0

Source: Northern Business Information Inc.

Figure 3

Total Canadian Subscribers ofCanadian Multiple System Operators Cable Systems: 1982



Note: Figures include subscribers in cable systems in which MSOs have a minority interest.

Source: Cable Communications Magazine, November 11, 1982.

More significantly, the computer industry in Canada has been growing dramatically over the past decade with annual growth rates consistently well above GNP until, in 1982, it topped $5.5 billion in revenues.[56] It has evolved as a number of distinct but related sectors – EDP hardware suppliers, a services sector, and more specialized products and services – and Table 4 presents information on the top companies in each of these sectors. IBM Canada, the wholly owned subsidiary of its US parent, continues clearly to dominate the industry both in terms of mainframe computers and the rapidly growing business/personal computer market, although its role in the services and other markets is more modest. Ownership is certainly one differentiating factor within the industry as fully 90 percent of hardware sector revenues are accounted for by American and foreign-owned firms while, in the service area, the pattern is quite different with Canadian owned firms accounting for 80 percent of sector revenues.[57] Likewise, the import/export balance within the computer industry in Canada has been a matter of concern as the country continues to import more than twice as much EDP hardware as it exports to other countries.[58] And finally, it should be noted that the computer industry in Canada has developed essentially under unregulated conditions and separate from the telecommunications industry but the increasing convergence of computer and communications technologies and continued rapid growth of the industry in areas like data transmission suggest that the long-heralded competition between an unregulated computer industry and a somewhat deregulated telecommunications industry is just beginning.

It is possible to give only brief treatment to a number of other players (and potential players) in the "information business".

- Canada Post Corporation, with a statutory monopoly over the delivery of "letters" and now established as an independent Crown corporation, is moving increasingly into the area of "electronic mail" and other commercial services in competition with the telecommunications companies.
- The radio common carriers (RCC's) presently provide a range of mobile telephone and paging services in competition with the telephone companies and, in future, competition will be extended into the area of cellular mobile radio.
- The satellite industry, heretofore monopolized by Telesat, will begin to open to competition with the prospective liberalization of earth-station uplink ownership and the advent of direct-to-home broadcasting and other services.

Table 4
The Leading Companies in the Canadian Computer Industry by Sector, 1982

Sector and Company	Ownership	EDP Revenues	Percentage of Sectoral Revenues
Hardware Suppliers (including Small Business Systems and Word Processing Specialists)			
IBM Canada Ltd	US	1,846.0	41.4
Digital Equipment of Canada Ltd	US	294.9	6.7
Control Data Canada Ltd	US	206.0	4.6
Phillips Information Systems	Netherlands	199.6	4.5
AES Data Inc	Canada	188.1	4.2
NCR Canada Ltd	US	154.0	3.5
Sperry Inc	US	140.4	3.2
Honeywell Ltd	US	110.0	2.5
Burroughs Canada	US	108.5	2.4
Hewlett-Packard (Canada) Ltd	US	101.9	2.3
Wang Canada Ltd	US	64.7	1.5
Radio Shack (Tandy Electronics)	US	61.3	1.4
Xerox Canada	US	47.7	1.1
Nabu Manufacturing Corporation	Canada	35.0	0.8
Commodore Business Machines Ltd	Bahamas	30.0	0.2
Total Sector		(4,461.9)	
Service Bureaus			
Canada Systems Group Ltd	Canada	140.6	20.6
Datacrown Inc	Canada	88.0	12.9
BC Systems Corporation	Canada	63.0	9.2
IP Sharp Associates Ltd	Canada	51.6	7.6
IBM Canada Ltd	US	44.0	6.4
l'Industrielle-Services Tech	Canada	28.4	4.2
Control Data Canada Ltd	US	25.0	3.7

Table 4 (Cont'd)

Sector and Company	Ownership	EDP Revenues	Percentage of Sectoral Revenues
IBM Plug-Compatible Manufacturer Specialists			
STC Canada Ltd	US	84.7	34.4
Amdahl Ltd	US	77.0	22.1
Memorex Canada	US	57.4	16.5
Northern Telecom	Canada	29.0	8.3
Total Sector		(347.9)	
OEMS, Systemhouse, Distributors and Third-Party Companies			
Cherney Mills Inc	US	22.4	10.3
Lanpar Technologies Inc	Canada	21.4	9.8
Altel Data	Canada	21.0	9.6
Ahearn and Soper	Canada	16.0	7.3
Total Sector		(216.1)	
Software and EDP Consulting Companies			
Systemhouse Ltd	Canada	39.8	28.2
DMR and Associates	Canada	33.1	23.4
Quasar Systems	Canada	18.5	13.2
Sydney Development Corporation	Canada	8.0	5.7
Total Sector		(141.4)	
Terminal and Peripheral Equipment Specialists			
Electroholme Ltd	Canada	25.0	24.0
CGE Co Ltd (Info Services)	US	21.0	20.2
Matrox Electronic Systems	Canada	11.0	10.6
Norpak Corporation	Canada	10.0	9.6
Total Sector		(104.0)	
Data Communications Specialists			
Gandalf Technologies Inc	Canada	53.3	42.3
ESE Ltd	US	30.4	24.1
General Datacom Industries	US	17.2	13.7
NCR Contem Inc	US	6.5	8.3
Total Sector		(126.0)	

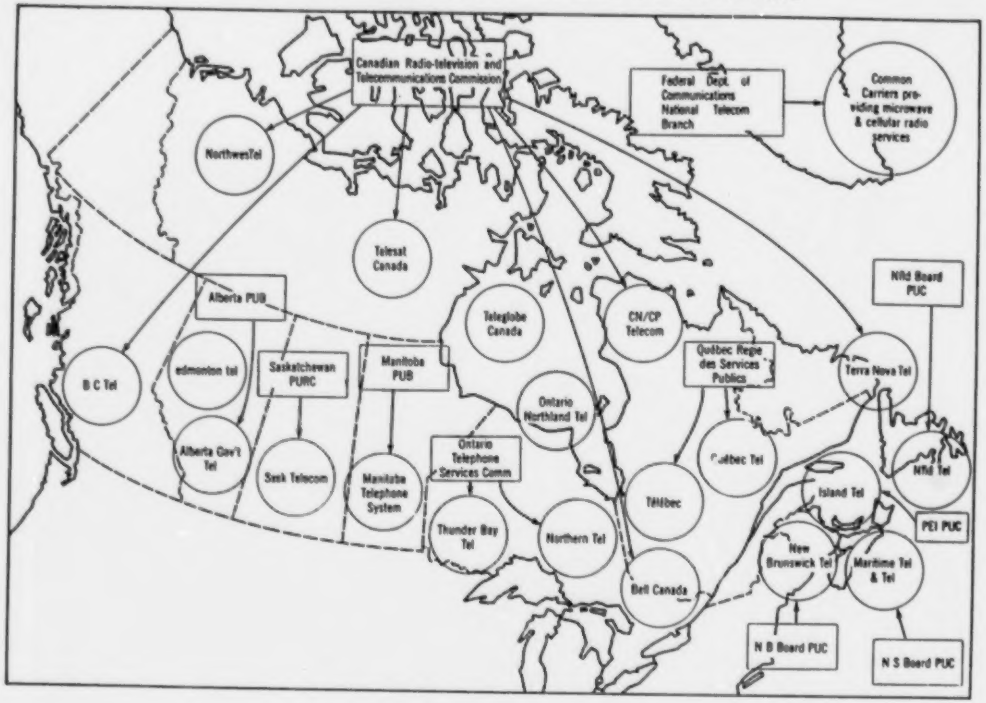
Source: Evans Research Group, *EDP In-Depth Reports*, June 1983.

- Business equipment manufacturers, seeking to break into the market for telecommunications equipment, are coming more and more into conflict with telecommunications carriers and suppliers as we move towards the "office of the future".
- The financial services industry in Canada is moving quickly towards electronic funds transfer which will require enhanced transmission and switching capability within an especially secure communications network.
- The newspaper and periodical industries may well come into competition with the telephone companies and the cable industry when the era of "electronic publishing" is upon us.

Thus, it should be apparent that the "information business" – and specifically the role of the telecommunications sector within it – is changing rapidly as the diffusion of technology within the communications and information field proceeds apace and the boundaries between traditional industries and barriers to entry into particular markets erode.

Superimposed upon this confusion of technological change and industry structure is a pattern of regulation and policy which fits uneasily over various areas of the "information business". Figure 4 provides a graphic representation of the pattern of regulation as it applies to the Canadian telecommunications sector. At the federal level, the Department of Communications allocates the radio frequency spectrum and holds overall policy-making responsibility while the CRTC exercises regulatory authority over the whole of the broadcasting system (including cable) as well as over a major part of the telecommunications system, specifically the rates and services of Bell Canada in Ontario and Quebec, BC Tel throughout British Columbia and Terra Nova Tel and Northwestel in Newfoundland and the Northwest Territories as well as over CNCP Telecommunications and Telesat Canada.[59] It has not yet been fully established, however, just how far federal regulation extends with regard to the operations of Telecom Canada in the provision of long distance telephone service, CNCP Telecommunications when it seeks to interconnect with provincially regulated telephone companies, or Teleglobe Canada which has thus far been exempt from CRTC regulation. Moreover, other federal departments and agencies like the Director of Investigation under the Combines Investigation Act and the Restrictive Trade Practices Commission have also cast a critical eye on telecommunications industry practices such as vertical integration or interconnection and terminal attachment while the Foreign Investment Review

Figure 4
Regulation of Canadian Telecommunications Common Carriers


Canadian Radio-television and Telecommunications Commission
Federal Dept. of Communications National Telecom Branch
Common Carriers providing microwave & cellular radio services
NorthwesTel
Telesat Canada
Alberta PUB
B C Tel
edmonton tel
Alberta Gov't Tel
Saskatchewan PURC
Sask Telecom
Manitoba PUB
Manitoba Telephone System
Teleglobe Canada
CN/CP Telecom
Ontario Northland Tel
Ontario Telephone Services Comm
Thunder Bay Tel
Northern Tel
Bell Canada
Télébec
Québec Regie des Services Publics
Québec Tel
Terra Nova Tel
Nfld Board PUC
Nfld Tel
Island Tel
PEI PUC
New Brunswick Tel
Maritime Tel & Tel
N B Board PUC
N S Board PUC

Agency has occasionally become involved where the establishment or takeover of computer or other firms have had to be justified as to whether they provide "significant benefit" to Canada or individual provinces.[60] And finally, through the control which it can exercise over various public enterprises from Telesat and Teleglobe to the CBC and Canada Post as well as through the myriad of incentives and subsidies provided through the tax system and more directly for matters of research and development, the federal government's regulatory authority and influence on policy-making is substantial but by no means comprehensive.

At the provincial level, all provincial governments in Canada have full departments or units responsible for communications and, over the past decade, they have fought a running battle with the federal government to protect and extend provincial jurisdiction in the field. In each of the seven provinces which presently exercise full jurisdiction, public utilities boards or commissions exercise regulatory authority over the local telephone company and its rates and services.[61] Even in Ontario and Quebec where the federal government regulates Bell Canada, the provincial governments maintain regulatory bodies to regulate the smaller independent telephone companies which continue to operate within those provinces. In addition, in the prairie provinces, the telephone companies are owned outright by the provincial governments and operated as Crown corporations with a mandate to serve provincial public policy objectives.[62] Moreover, the provincial governments in all provinces can and do influence decisions within the telecommunications sector and the broader "information business" within their boundaries through locational incentives, research and development grants, procurement policies and other practices which they follow. Thus, provincial governments – as well as the federal government – are major players in the future of telecommunications regulation in Canada.

Finally, one should be aware of the world context within which the telecommunications sector is evolving and various international factors affecting telecommunications regulation in Canada. In virtually every advanced industrial nation in the world, telecommunications is presently undergoing far-reaching structural and behavioral changes. In the United States, the AT&T divestiture – with its immediate impact on local service pricing as well as its longer-term implications for multifaceted competition beyond the area of local service – is clearly the most dramatic recent development within an industry undergoing rapid change. While the powerful position of the new, unencumbered AT&T within the industry and the decisive role of the telecommunications sector within the overall "information business" is likely to be maintained, the pace of technological advance and the pressure of competitive forces have created the conditions under which an effective and thorough-going deregulation of telecommunications in the United States is proceeding.[63] In Great Britain, an ideological commitment to "privatization" and a reduction in government regulation has meant that British Telecom – that much-criticized epitome of state enterprise – is "on the block" and there are ongoing plans for the introduction of greater competition within the telecommunications and related sectors. Closely associated with this trend as well as a recognition and resolve that Great Britain's creaky telecommunications system must be modernized and that such modernization offers unique opportunities for the growth and development of a variety of high-technology hardware and information industries.[64] In France, the commitment of successive governments – centrist and socialist alike – to the "telematique" and the extensive diffusion of computerization throughout French society remains seemingly as strong as ever, even though the difficulties and costs of doing so are becoming increasingly apparent. In this regard, the monopoly position of the French PTT (which has always provided postal, telegraph and telephone service) and the short-term benefits of a protected domestic market for telecommunications and computer equipment are coming under scrutiny.[65] And even in Japan, where so much of the initial technological development and marketing strategy associated with information technology took place, there are somewhat divergent tendencies at work with regard to telecommunications. While MITI – the top-level state bureaucracy which has spearheaded Japan's high-technology growth – moves towards the development of a "fifth generation computer", plans are in the works for the break-up and privatization of Nippon Telephone and Telegraph at the same time that actions are seemingly being taken to open the domestic equipment market to greater competition from foreign suppliers.[66] Throughout the industrialized world, then, national communications policies are in a state of flux as governments and industries respond to technological change and pressures for competition within the telecommunications sector.

Canada is by no means immune to the same kinds of trends and the various international factors which affect telecommunications regulation elsewhere in the world. One obvious factor is firm size and the balance of trade. This is dramatically evidenced by the fact that Northern Telecom – while the largest telecommunications equipment manufacturer in Canada and second-largest in North America – is only the eighth largest in size among companies involved in the world telecommunications market. Likewise, despite its apparent comparative advantage, Canada continues to run a substantial trade deficit in its balance of trade in the overall communications area.[67] Another factor affecting Canada's position in the telecommunications sector is the subtle but effective non-tariff barriers erected by all countries to protect their telecommunications and related markets. The Japanese case is particularly notorious in that, until very recently, there was virtually no way that Canada or any other nation seeking to export telecommunications equipment to Japan could crack the closed domestic market.[68] Yet another factor is the marked differences among countries in the way the telecommunications sector is organized and regulated. Canada is a bit of an anomaly in this regard with its mixed public/private, federal/provincial patchwork – different than the purely government-owned and controlled monopoly situation like the PTTs found in most Western European countries, Japan, or in many developing nations but also different from the federally-supervised private sector pattern which is presently undergoing deregulation in the United States – and this raises its own unique problems in facilitating the expansion of trade and in international communications regulation.[69] One last factor which also impacts on the telecommunications sector in Canada is the relative weakness of international institutions able to provide a framework for the complex commercial and regulatory issues arising in this area. The International Telecommunications Union (ITU), in particular, has yet to evolve comprehensive and mutually acceptable rules to govern the new products and services which threaten to throw the more established aspects of international telecommunications regulation into disarray.[70] Thus, while the future of telecommunications policy and regulation in Canada will be decided primarily within the domestic arena, the experience of other countries and international factors must not be overlooked.

This "first cut" at mapping the telecommunications sector and the "information business" as it is evolving in Canada has necessarily been brief. We have sought to highlight the technological basis underlying ongoing developments, the increasing overlap of traditional industry structures and markets, the complex pattern of regulation and policy which has been superimposed upon it, and the international factors which should be taken into account. Our analysis should be suggestive of the extensive range of major players potentially involved in decisions about the future of telecommunications policy and regulation in Canada and the broad lines of conflict which might develop among players pursuing their own particular positions and interests. In subsequent parts of this section, we will now provide a more detailed analysis of the positions, interests and perceptions of each of these major players.

Canada's Telecommunications Providers

The fundamental fact about provision of telecommunications goods and services in Canada is that, now and in future, it is possible for a much wider range of players to become providers. The range of technological possibilities for providing voice, image and data communications is increasing greatly at the same time that the boundaries between existing markets are eroding and barriers to entry into new markets are breaking down. The various providers of telecommunications goods and services can be broken down into two main categories:

> First, the major telephone companies across the country which have until now provided what is referred to in the industry jargon as "POTS" (Plain Old Telephone Service) largely on a monopoly basis;
>
> Second, the "Competition", both actual and potential, which are alternative providers of certain telecommunications goods and services.

We will now examine the major players within each category in terms of their positions, interests and perceptions with regard to technology, competition and the prevailing pattern of policy and regulation.

The Telcos

Canada's telephone companies (or "telcos") have long been the backbone of the telecommunications sector and, in future, will be key elements within the overall "information business". Providing access to their exclusive network for local and long-distance calling as their unique product, these companies also compete with other providers in offering a variety of other products and services including private lines, mobile services, terminal attachment devices, data transmission, among others. With regard to local services, they operate as natural monopolies subject to price and rate of return regulation and are supervised within their given territories by either federal or provincial regulatory authorities. Increasingly, however, the telcos face the threat of "bypass" of their local and long distance service as well as increased competition in new and existing markets. In these circumstances, the telephone companies are changing considerably from within – still defensive of their monopoly privilege but gradually more open to competition, more aggressive in marketing their services, and increasingly irritated by the at times "heavy hand" of regulation. At the same time, however, there is increasing variation among the major telephone companies across the country and our interviews have served to confirm the different views and interests and the different regulatory and political situations in which they find themselves. Thus, as one telco executive commented, "the days when you could expect all the telcos to express the same position are long gone".

Among the major telephone companies, Bell Canada – as the provider of almost 60 percent of telephone service in Canada and the generator of over 50 percent of telephone revenues – has the most to protect but also is probably in the best position to gain from ongoing trends and developments. Recently reorganized as a subsidiary of the parent Bell Canada Enterprises, the company continues to be subject to direct regulation by the CRTC but the reorganization has effectively shielded other subsidiaries of the parent from government regulation and created the conditions for shifting to a more competitive mode of activity.[71] Dating back to the pro-competition decisions taken by the CRTC during the late 1970s and before, Bell Canada has consistently taken a position which can best be characterized as "competition if necessary, but not necessarily competition". It has described any movement towards greater competition in Canada as a "slippery slope" which, once started down, becomes irreversible and threatens traditional pricing structures and the concept of universal service.[72] As competition through interconnection – both at the system level and in terms of terminal attachment – as well as through the introduction of new services has become a reality, Bell Canada has placed an increasing premium on the integrity of the network and quality of service as their prime competitive strong point and has pointed to the "chaos" created by uncontrolled deregulation in the United States. Not surprisingly and at every opportunity, it has fought to preserve its monopoly privilege and to cast that privilege as widely as possible to include such services as paging and terminal attachment devices, arguing its case aggressively before the CRTC and in the courts and appealing adverse decisions to the federal Cabinet, although admittedly without much success. At the same time, however, Bell Canada has also been preparing itself all the while for life in a more competitive environment.

There are several other features to the Bell Canada position as it has evolved over the past few years. Technological "bypass" in the various possible forms it takes—cable, satellites, LANs, etc.—is viewed as a serious threat but not necessarily an immediate or inexorable one in Canada.[73] Rather, as with the case of long distance competition, company executives see any problems as arising primarily from the underlying economic inefficiencies of the current rate structure. Utilizing its Five-Way Split methodology to generate the only presently-available data on the extent of cross-subsidization between long-distance and local service among other evidence, it argues that there is an imperative need for "rate rebalancing"—moving prices closer to costs—and whatever revised pricing principles, including the possibility of local-measured-service, that such change might imply.[74] In the past, as well, Bell Canada has on occasion suggested that, while it does not challenge federal jurisdiction over the company and its monopoly telephone activities, perhaps it might be better if the provincial governments in Ontario and Quebec were to exercise regulatory control over these operations.[75] With regard to these and other important decisions that need to be taken, the company argues that these are matters of broad public policy on which Parliament—not regulatory decision-makers—should decide where the public interest lies, thus expressing a long-standing company position as well as at least some consternation with recent CRTC decisions.[76] And on one final point Bell Canada is adamant, i.e., if increased competition is the way to go, then let the company meet its competitors but "not with one hand tied behind our back".

British Columbia Telephone Company is the second largest company in Canada in terms both of revenues and subscribers. Indirectly owned and controlled by the US-based GTE Corporation and subject to federal regulation by the CRTC in Ottawa, BC Tel has suffered somewhat from a kind of "absentee landlord" syndrome. Not surprisingly, there has been a strong tendency for BC Tel to share many of the same positions taken by Bell Canada but sometimes to articulate them in a sharper fashion. From the evidence of its submissions on recent issues, BC Tel seems to be strongly committed to adopting a competitive mode outside of the areas of its monopoly local and long distance service and very much attuned to the diverse possibilities raised by the evolving "information business".[77] In particular, it has expressed concern that, as competition develops in new services, regulation must be significantly reduced if not eventually eliminated. Moreover, the company has also expressed greater concern about the reality as well as the threat of "bypass", pointing to the particularly heavy concentration of its business and even its residential revenues among a small percentage of customers and to the fact that cross-border resellers have already sprung up to take a portion of their Canada-US traffic.[78] As well, like Bell Canada, BC Tel is equally adamant about the need for "rate rebalancing" but, consistent with the practice followed by its US parent, the company has taken the lead among all the telephone companies in Canada in pressing the case for local-measured-service as the most appropriate method for rejigging local rates.[79] Finally, on jurisdictional and regulatory issues, BC Tel has been strongly supportive of the view that there should be a single regulator and a comprehensive legislative framework for telecommunications and, somewhat at variance with their provincial government, seems generally to have been satisfied with CRTC regulation.[80]

The prairie telephone companies – Alberta Government Telephones, the Manitoba Telephone System, and Saskatchewan Telecommunications – are all distinguished primarily by a single fact, namely, that they are all provincial government-owned as well as being provincially regulated. Nevertheless, this striking similarity should not be allowed to obscure the important differences among them.[81] In Saskatchewan and Manitoba, the telephone companies are used more explicitly to serve provincial government purposes and, for example, provide all cable distribution within the province, while Alberta Government Telephones is supposed to be run more on a purely commercial basis. In Manitoba and Alberta, the telephone companies have been regulated by long-established provincial regulatory agencies while, in Saskatchewan until 1983, Sasktel was controlled directly by the Cabinet.[82] Likewise, each company has pursued its own corporate strategies with Sasktel, for example, moving rapidly to introduce fibre optics to serve its most dispersed population, Alberta Government Telephones attempting to expand its research and development capability, and the Manitoba Telephone System showing particular interest in videotext and its uses in the rural context. On many matters, however, the three prairie telephone companies have common positions. As holders of a total territorial monopoly within their respective provinces (except for Alberta where "Edmonton telephones" breaks that pattern), the prairie telephone companies are adamantly opposed to the introduction of competition into the provision of basic local and long distance service. In a recent submission to the federal government, the Manitoba Telephone System argues that the benefits of greater competition must be clearly demonstrated before any adjustments should be made to the existing industry structure.[83]

The provincial telephone companies generally assert that government monopoly was necessary in the past precisely because competition could not ensure high quality, low-cost, universal telephone services especially to rural customers and that, in future, the introduction of greater competition would only take away revenues that are needed to support the existing telecommunications network within the province.

For political more than for economic reasons and with the possible exception of AGT, the prairie telcos tend to place considerably less emphasis on the need for "rate restructuring" and oppose the movement towards cost-based pricing as defeating the very purpose which government ownership was designed to serve.[84] Likewise, government ownership and regulation also means that, particularly in a province like Saskatchewan where the Sasktel controls cable distribution and the government shows no desire for broader interconnection to the telephone network, the threat of "bypass" insofar as it affects local service is viewed as minor.[85] On the other hand, with regard to "bypass" of the long distance service, the prairie telcos, which are the three most toll dependent companies across Canada in terms of total revenues, are vulnerable at least indirectly to "bypass" threats which take place elsewhere but reduce the size of the pool from which they draw their toll revenues. What this means, then, is that the prairie telcos tend to be perhaps the strongest supporters of the present operation of Telecom Canada and the connecting agreement upon which it is based and among those most adamantly opposed to increased competition not only within their boundaries but elsewhere in Canada.[86] Without any of the pejorative connotations sometimes attached to the term, it has been suggested that the prairie telcos have almost a "fortress" mentality about the way in which government monopoly allows them to operate – they want to preserve the system as it is while moving to modernize and improve it.

Telephone companies in the Atlantic provinces – Maritime Telegraph and Telephone in Nova Scotia, New Brunswick Telephone, Newfoundland Telephone, and Island Telephone – operate in yet a different context than do their federally-incorporated or provincially-owned counterparts. Each of the four Atlantic telephone companies is a privately-owned and provincially-incorporated entity which operates autonomously even though there is a significant though varying ownership share held by Bell Canada Enterprises; each company is considerably smaller in revenues than either Bell Canada, BC Tel or the prairie telcos but is still among the two or three largest employers within their province; and each company operates within a more stable and less complex regulatory climate.[87] While MT&T may be moving aggressively to expand telecommunications services to the offshore at the same time that Newfoundland Tel is more concerned about extending service to the last outport or while Island Tel has been forced to accept liberalized terminal attachment at the same time that New Brunswick Tel is still fighting it, there is still substantial common agreement among them on the continuing value of regulated monopoly as the best way of serving their customers and the deleterious impact of increased competition in the Atlantic region.[88] In a recent joint submission to the federal government, they were strongly supportive of present pricing principles such as value of service pricing and system-wide averaging and the way in which this has promoted universal service, viewed the cross-subsidization of local by long distance service as not necessarily perverse, and stressed the benefits of maintaining the carrier obligation to serve customers "on demand". The pressure for competition in the provision of telecommunications services is portrayed as coming from forces outside the Atlantic region, whether from the CRTC or the US experience, as benefiting business/urban/toll customers at the expense of residential/rural/local users, and as making network planning and provisioning subject to the vagaries of the market. To the Atlantic telephone companies, the technological factor presents itself as something of a paradox: given the economic and other conditions of the various provinces, the extensive use of new technologies does not seem likely but, precisely because of those economic and other conditions, efforts to apply and encourage indigenous technological development are imperative. And finally, on one point, there is no equivocation, namely, that "the CRTC is making fundamental policy decisions which are more appropriately dealt with in a political forum", that "federal regulatory activities have neglected to recognize regional/provincial concerns and consequently have not reflected a truly "national' public interest", that "disputes over jurisdictional responsibility have served to devitalize the cooperative effort embodied in Telecom Canada", and that "provincial responsibilities are being eroded by increased federal activity, resulting in decisions which are not properly aligned with the areas characteristics and needs".[89]

Telecom Canada – in business since 1931 with a most distinctive organizational structure and functioning according to operations and methods which are not always easy to understand – has facilitated the provision of monopoly long distance and other services across the country and encouraged a substantial degree of horizontal integration among the major telephone companies.[90] It is a curious organization, in many ways a phantom organization, but one which nevertheless can boast a solid record of success over the years. It is not incorporated as a legal entity and has no permanent employees, including its President, but rather relies on its member companies to assign, on secondment, the 500 or so people who work for it at any given time. It owns no poles, wires, microwave towers, switching equipment or other assets but relies again on its member companies to deliver its services. It takes decisions only on the basis of unanimous agreement among member companies and is not subject directly either to federal or provincial regulation, although individual companies are required to submit rate changes to their respective regulatory authorities. At the heart of the operation of Telecom Canada is the Revenue Settlement Plan (RSP) whereby revenues generated by long distance and other services are allocated among member companies according to a prescribed formula.[91] Despite nagging differences of opinion over their individual settlements, all member companies have a substantial incentive to accept this allocative formula because it allows them access to the lucrative pool of revenues generated by long-distance services which can, in turn, be used to support the higher costs of providing local service. And finally, Telecom Canada serves as a unique meeting place and training ground for telephone industry people in all the member companies through participation in its extensive committee structure and is, hesitantly but increasingly since the disbanding of the previous national trade association in 1981, acting as the industry spokesman on some general issues, although still careful not to encroach upon the prerogatives of member companies.[92]

Whether conceived as a venture in "private sector cooperative federalism", treated as simply a "cartel", or likened as some of the participants in its operation suggest to a "bumblebee" whose odd shape and aerodynamic properties would seem to defy successful flight, Telecom Canada is clearly not an easy organization to profile.[93] From within as well as from without, it faces tensions and conflicts which are not so readily resolved as they used to be. The member companies must each operate within their own sometimes quite different regulatory regimes and, as demonstrated already, there are significant differences among them on important issues. One obvious measure of the difference among member companies is the variance in their dependence on long distance toll revenues as a percentage of total operating revenues, ranging from a high of just over 65 percent for Sasktel vis-a-vis a low of just under 50 percent for Bell Canada. Table 5 provides information on the revenue dependency of all the major telephone companies. Likewise, there is considerable variation among telephone companies across the country in terms of the rates they charge for basic telephone services for residential and business subscribers and for interprovincial long distance calls of the same calling distance. Tables 4 and 7 present information on these points. The movement towards increased competition, both directly in long distance or more indirectly in terms of the expected impact on local service rates, is likely to put Telecom Canada under more and more pressure as member companies respond to different regulatory and competitive environments and are tempted to pursue their own self-interest as against the common interest.

Telecom Canada's view on issues, then, must often be tentative but the organization does have certain clear interests. It is obviously opposed, in principle as well as in practice, to the introduction of competition in long distance service, arguing both that the existing service is of high quality and effectively delivered and that tampering with such service would put pressure on local service rates and undermine universality. In private line services, data communications and enhanced services, however, Telecom Canada favours continued and more unrestricted competition, claiming that regulation too often is used to impede effective competition and to delay the provision of new and better services desired primarily by the business community.[94] However, on the matter of jurisdictional and regulatory reform, Telecom Canada takes a much stronger stand, desirous as a matter of first priority of promoting a mutually-agreeable and clear-cut jurisdictional settlement between the federal and provincial governments on contentious issues and worried about the danger that "two-tier" regulation might already be developing.[95] Given an increasingly competitive environment and stalemate on the jurisdictional and regulatory front, it is not beyond the realm of possibility that Telecom Canada might in future have to rethink its present organizational structure.

Telesat Canada is an integral part of the telephone companies' monopoly structure through its membership in Telecom Canada but it is at the same time also very much an anomaly. First and foremost, it is not in any real sense a telephone company which provides service directly to business or residential customers but rather it operates as a monopoly supplier of satellite transmission services to the telephone companies as well as to other common carriers and broadcasters.

Table 5
Toll Dependency, Share of Total Revenues and Share of TCTS Settled Revenue

(a) Percentage toll revenues (inter- and intraprovincial) of total operating revenues of TCTC members

	1980	1982
Saskatchewan Telecommunications	66.4%	65.5%
Alberta Government Telephones	67.3	64.0
Manitoba Telephone System	59.9	59.2
Newfoundland Telephone	63.0	58.9
Maritime Telegraph and Telephone	57.4	56.5
New Brunswick Telephone	58.7	55.8
British Columbia Telephone	58.3	55.0
Island Tel	56.1	54.0
Bell Canada	47.7	49.5

Source: TransCanada Telephone System, Statistics 1980, Telecom Canada, Statistics 1982.

(b) TCTS Statistics and ratios

Company	Percentage of total Revenues	Local as percentage of Total	Share of TCTS Settled Revenues
British Columbia Telephone Co	13.9	37.9	15.6
Alberta Government Tel	11.4	29.9	13.5
Saskatchewan Telecom	4.1	29.8	5.0
Manitoba Telephone System	3.4	34.7	5.0
Bell Canada	59.6	48.8	48.4
NB Telephone Co Ltd	2.6	36.2	3.3
Maritime Telegraph and Telephone Co Ltd	3.2	38.8	4.7
Island Telephone Co	0.3	41.2	1.0
Nfld Telephone Co Ltd	1.5	35.6	3.5
TOTAL	100.0	N/A	100.0

Source: DOC Telecom Statistics (1981), Columns 1 and 2 Peat, Marwick and Partners, Review of TCTS Revenue Settlement Practices for CRTC, Column 3.

Table 6
Comparison of Residential and Business Basic Service Rates, 1982

Individual Residence Main

Stations	Sask Tel Proposed $	BC Note 1 $	AGT Note 2 $	MTS $	Bell $	MT&T $	NB $	Nfld $	PEI Note 3 $
250	5.70	6.95	5.35	4.00	6.60	10.70	9.80	8.75	8.70
750	5.70	6.95	5.60	4.25	6.60	10.70	9.80	8.75	8.70
1,750	5.70	7.50	5.60	4.75	7.10	11.10	9.95	8.75	9.40
4,250	7.10	8.00	5.80	5.05	7.40	11.50	10.25	9.90	9.40
15,000	7.10	8.55	6.40	5.65	8.05	11.90	11.10	10.85	10.95
30,000	7.10	8.55	6.40	6.05	8.35	12.35	11.45	11.90	11.60
60,000	7.10	9.10	6.40	-	8.90	12.35	12.05	11.90	-
110,000	8.30	9.60	6.75	-	9.60	12.80	-	-	-
Regina	8.30								
Saskatoon	8.30								
Victoria		10.15							
Vancouver		12.25							
Calgary			7.30						
Edmonton (Tel)			9.00						
Winnipeg				6.75					
Montreal					11.45				
Toronto					12.35				
Halifax						12.80			
St. John							12.05		
St. John's								11.90	
Charlottetown									11.60

Table 6 (Cont'd)

Comparison of Basic Service Rates in Canadian Telephone Companies

Individual Business Main

Stations	Sask Tel Proposed $	BC Note 1 $	AGT Note 2 $	MTS $	Bell $	MT&T $	NB $	Nfld $	PEI Note 3 $
250	10.95	13.60	8.25	6.55	13.05	16.70	18.50	19.00	16.75
750	10.95	13.60	10.25	7.15	13.05	16.70	18.50	19.00	16.75
1,750	10.95	15.75	10.25	8.65	14.95	20.85	20.70	19.00	20.15
4,250	15.40	18.00	12.25	9.55	16.95	23.85	22.05	26.40	20.15
15,000	15.40	20.35	16.30	12.25	19.40	27.25	27.45	31.80	29.85
30,000	15.40	20.35	16.30	14.35	22.25	32.20	29.80	36.80	35.50
60,000	15.40	22.70	16.30	-	25.60	32.20	35.45	36.80	-
110,000	20.85	25.05	18.30	-	29.00	37.20	-	-	-

Table 6 (Cont'd)

Stations	Sask Tel Proposed $	BC Note 1 $	AGT Note 2 $	MTS $	Bell $	MT&T $	NB $	Nfld $	PEI Note 3 $
Regina	20.85								
Saskatoon	20.85								
Victoria		27.85							
Vancouver		42.15							
Calgary			19.75						
Edmonton (Tel)			24.85						
Winnipeg				17.55					
Montreal					37.70				
Toronto					40.70				
Halifax						37.20			
Saint John							35.45		
St. John's								36.80	
Charlottetown									35.50

Note 1 Application before CRTC
2 Application before Alberta PUB
3 Application before PEI PUC

Source: Saskatchewan Telecommunications, Rate Schedule Application 1983.

Table 7
Message Toll, Two Point Service Rates for Customer-Dialed, Business Day, 3-Minute Duration (Dollars)

Mileage	TCTS	BC Tel	AGT	SGT	MTS	Bell	NB Tel	MT&T	Isl Tel	Nfld	Canada /USA	US Inter State*
10	0.54	0.42	0.26	0.33	0.18	0.33	0.34	0.33	0.33	0.45	0.36	0.37
15	0.54	0.51	0.44	0.33	0.24	0.53	0.40	0.42	0.39	0.51	0.36	0.47
20	0.54	0.63	0.44	0.39	0.30	0.53	0.46	0.52	0.51	0.57	0.46	0.55
25	0.71	0.72	0.62	0.45	0.42	0.64	0.52	0.63	0.57	0.66	0.46	0.57
30	0.71	0.87	0.62	0.45	0.42	0.64	0.61	0.72	0.69	0.69	0.46	0.67
35	0.71	0.99	0.62	0.51	0.48	0.73	0.67	0.81	0.75	0.75	0.58	0.77
40	0.91	1.02	0.80	0.60	0.54	0.73	0.73	0.90	0.81	0.78	0.58	0.77
45	0.91	1.05	0.80	0.69	0.65	0.82	0.79	1.02	0.93	0.81	0.58	0.89
50	0.91	1.14	0.80	0.69	0.60	0.82	0.79	1.11	0.99	0.90	0.58	0.89
75	1.11	1.32	0.98	0.90	0.72	1.00	1.00	1.22	1.05	1.05	0.70	1.01
100	1.28	1.41	1.16	0.99	0.84	1.90	1.12	1.47	1.05	1.14	0.82	1.01
125	1.45	1.59	1.34	1.14	0.90	1.15	1.24	1.71	na	1.29	0.94	1.04
150	1.62	1.68	1.34	1.26	1.02	1.21	1.30	1.77	na	1.44	1.06	1.04
175	1.62	1.74	1.52	1.38	1.08	1.30	1.36	1.86	na	1.56	1.06	1.04
200	1.79	1.80	1.52	1.44	1.08	1.30	1.42	1.98	na	1.65	1.18	1.10
225	1.79	1.92	1.70	1.53	1.14	1.39	1.42	2.01	na	1.65	1.30	1.10
250	1.96	1.92	1.70	1.65	1.20	1.39	1.42	2.04	na	1.80	1.30	1.10
300	2.13	2.01	1.70	1.74	1.26	1.48	na	2.04	na	1.80	1.42	1.16
350	2.13	2.16	1.88	1.92	1.32	1.54	na	2.04	na	1.80	1.57	1.16
400	2.13	2.16	1.88	1.92	1.32	1.54	na	na	na	1.80	1.57	1.16
450	2.28	2.16	1.88	1.92	1.38	1.59	na	na	na	1.80	1.75	1.18
500	2.28	2.16	1.88	1.92	1.38	1.59	na	na	na	1.80	1.75	1.18
750	2.58	2.16	1.88	1.92	1.38	1.68	na	na	na	1.80	1.93	1.18
1000	2.70	2.16	1.88	1.92	na	1.66	na	na	na	1.80	2.11	1.24
1500	2.88	2.16	1.88	1.92	na	1.66	na	na	na	1.80	2.26	1.24
1900	2.97	2.16	1.88	1.92	na	1.66	na	na	na	1.80	2.38	1.24
2200	2.97	2.16	1.88	1.92	na	1.66	na	na	na	1.80	2.38	1.30
3000	2.97	2.16	1.88	1.92	na	1.66	na	na	na	1.80	2.50	1.30

Notes: *US Interstate in US dollars
na: not applicable
TCTS: TransCanada Telephone System; BC Tel: British Columbia Telephone Co; AGT: Alberta Government Telephones; SGT: Saskatchewan Government Telephones; MTS: Manitoba Telephone System; Bell: Bell Canada (Ontario and Quebec); NB Tel: New Brunswick Telephone Co; MT&T: Maritime Telephone and Telegraph Co (Nova Scotia); ISL Tel: Island Telephone Co (Prince Edward Island); Nfld: Newfoundland Telephone Co.

Source: Joseph S. Schmidt and Ruth M. Corbin, "Telecommunications in Canada: The Regulatory Crisis", Telecommunications Policy, September 1983, p. 223.

Originally established by statute as a "carriers' carrier" and with all the major Canadian telecommunications companies sharing ownership with the federal government, its status was confirmed in 1977 when the federal government overruled a CRTC decision and allowed Telesat Canada to become a full member of Telecom Canada.[96] Moreover, the federal government, through the Minister of Communications, exercises broad supervisory powers over Telesat Canada with regard to the management and financing of its satellite program as well as its dealings with international satellite operators. This close relationship between Telesat Canada and the major telephone companies was viewed as particularly beneficial during the early years because it provided the former with guaranteed sales of full transponder channels to its major customer while, from the point of view of the telephone companies, it has allowed them to manage competition between their own microwave facilities and Telesat's satellite facilities.[97] Increasingly, however, there are pressures for change coming from many sides. Whereas Telesat Canada – as a monopoly supplier of satellite transmission services – has in the past been opposed to competition within that segment of the telecommunications sector, it now takes a somewhat more positive attitude towards increased competition through sale of partial transponder channels and even liberalized ownership regulations as one prime way of expanding the market for satellite transmission services.[98] At the same time, as an important "bypass" technology in and of itself, Telesat Canada must also be drawn towards at least contemplating the possibility that it could be "spun off" as a direct and independent provider of telephone and other telecommunications services.

Vertical integration between some telephone companies and their major suppliers means that the positions and interests of equipment manufacturers must also be taken in account. The relationship between Bell Canada and Northern Telecom is, of course, the classic example but by no means the only one as the BC Tel – Microtel, the AGT – Novatel and Telesat – Spar Aerospace relationships attest.[99] Northern Telecom has, quite naturally, sought to preserve its privileged position as the predominant supplier of equipment to Bell Canada and, more indirectly, to the other telephone companies across Canada. At the same time, however, it has also become increasingly oriented towards exports, both in North America and elsewhere, and has thus had to accommodate itself to the competitive environment found within the world telecommunications market. In its submissions to the Restrictive Trade Practices Commission, Northern Telecom and Bell Canada defended vertical integration with arguments ranging from the need to exploit economies of scale in promoting technological advance to rebuttal of any evidence suggesting that purchase prices were higher for equipment bought from monopoly as opposed to competitive suppliers, to assertions of the benefits to Canada of supporting a worldscale company within the global telecommunications equipment market. Northern Telecom is generally supportive of competition not only in the international market but also in the domestic market and it is strongly opposed to any excessive regulation by governments at any level.[100] From its point of view, the key problem is to reconcile competition to the legitimate industrial strategy goals of both federal and provincial governments so as to allow companies like itself to compete effectively in domestic and international markets.[101] Thus, Northern Telecom was naturally buoyed up by the successful reorganization of Bell Canada Enterprises into a more competitive mode and cheered by the final report of the Restrictive Trade Practices Commission which largely sustained the case for some degree of vertical integration.

Finally, brief mention should also be made of the presence of several other independent telephone companies in Canada. Terra Nova Tel which serves roughly half of Newfoundland and Labrador and Northwestel in the Yukon and Northwest Territories are both owned and operated by the telecommunications arm of Canadian National Railways and regulated by the CRTC and face the particular problems of providing service to rural and remote areas. In Ontario and Quebec, as well, there are a number of small independent telephone companies – some 30 in Ontario and a somewhat lesser number in Quebec – which are community-run and regulated by the provincial governments and which must interconnect with Bell Canada in order to adequately serve their customers.[102] Moreover, "Edmonton Telephones" – the 8th largest telephone company in Canada and owned and operated by the municipal government – has been locked in a long and bitter battle with Alberta Government telephones over the amount of long distance revenues which it receives for calls originating and terminating within its territory.[103] Likewise, Quebec Tel – owned and operated by the US-based GTE Corporation and regulated by the provincial government – has unsuccessfully sought full membership in Telecom Canada, although it does hold associate member status.[104] And lastly, Teleglobe Canada which has recently become a prime candidate for privatization, has begun to move beyond its original mandate to provide overseas cable and satellite telephone services towards the provision of a wider range of telecommunications services.[105] Thus, taken together and with due account for the diversity among them, the "telcos" continue to be the major and largely monopoly providers of the local and long distance telephone service in Canada.

"The Competition"

Lined up against the monopoly telephone companies in Canada are alternative providers of telecommunications goods and services which together constitute "the Competition". It is a loose group comprising a variety of companies or industries which, presently or in future could operate within limited areas of the telecommunications sector. "The Competition" potentially takes many different forms:

First, well-established companies like CNCP Telecommunications which is seeking to broaden its range of service offerings beyond message record, private line and data communications services;

Second, middle-range and smaller companies operating in the equipment manufacturing industry and in the recently-created interconnect industry;

Third, major players in the "information business" such as the cable companies, the computer industry and the post office, all of which are positioning themselves as competitors with the telcos in particular services and markets;

Fourth, infant communications and information markets spawned by new technologies like cellular radio, videotext, and the resale market;

Fifth, foreign providers of telecommunications goods and services like the recently-divested AT&T, MCI or Sprint as well as American satellite companies or equipment manufacturers which might wish to enter the Canadian market either directly or indirectly.

As one might expect, "the Competition" is obviously strongly in favour of competition, both as a way of breaking down monopoly control and as the most efficient mechanism for providing telecommunications goods and services, but the concept does not always have exactly the same meaning in practice for each of the players. Likewise, as companies or industries which have often been built around technological "bypass" of one sort or another, they regard it as a natural part of the competitive process and something which should not be restricted by artificial barriers. Thus, "the Competition" tends to be highly critical of policy and regulation, whether at the federal or provincial level, which tends to exclude competition or limit "bypass" as well as the continuing inefficiencies of the regulatory process. While it is dangerous to generalize too much about this diverse group and impossible to treat all of its elements, it is useful to profile some of the key players among "the Competition".

CNCP Telecommunications has clearly emerged as the leading champion of increased competition within the Canadian telecommunications sector. Originally and still a telegraph company and only a partnership as recently as 1980, CNCP became a limited competitor to the telephone companies when, during the 1950s, its nation-wide microwave network began operating and provided the first major example of technological "bypass" in Canada.[106] During the 1960s and 1970s, a competitive rivalry developed between CNCP and what is now Telecom Canada as each sought to offer slightly different but better private line and data communications services to major business users.[107] In 1979, CNCP secured CRTC approval for interconnection with Bell Canada following a long fight with the latter whose spirited defense of regulated monopoly was characterized by CNCP as the "de Grandpre doctrine" and, in 1983 of course, CNCP went one step further in applying to the CRTC for approval to provide long distance service in competition with the telephone companies.[108] One of its major complaints about the existing situation is the continuing restrictions placed on CNCP in attempting to compete effectively with the telephone companies. In particular, it is critical of Telecom Canada and its member telcos for their alleged unwillingness to accept full interconnection and for their marketing practices and also of many provincial governments and regulatory authorities for continuing to refuse interconnection within their boundaries.[109] In recent years, CNCP Telecommunications has begun to emphasize the role which successive federal governments and Ministers of Communications have suggested it has as an alternative national network to that of the telephone companies and to present itself to the public as Canada's only "nationwide telecommunications company".

As far as CNCP Telecommunications is concerned, the main issue in telecommunications regulation in Canada is not the need for increased competition but the continued existence of regulated monopoly.[110] CNCP argues the case for competition along traditional lines, emphasizing the gains in terms of economic efficiency as well as lower prices, and places particular attention on the dynamic role of technological change as the driving force behind increased competition in Canada. In particular, it suggests that continued monopoly is no longer sustainable in Canadian telecommunications, citing such reasons as the erosion of sectoral boundaries, greater availability of substitution, the outdated notion of "end-to-end" responsibility in the provision of communications services and, not least of all, the demands of business users. As to the specific form which increased competition should take, CNCP professes support for two, three or more companies operating within particular markets – whatever is necessary for "effective" competition. It does, however, see a need for continued regulation of the telephone companies which choose to operate in such markets and says that it does not oppose the movement of costs to prices so long as this is done after increased competition and not before.[111] Finally, with regard to jurisdictional and regulatory issues, CNCP is distressed by the failure of the federal government to aggressively assert the "national dimension" in telecommunications regulation but generally favourable to the way in which the CRTC, even without clear policy direction, has gone about regulating telecommunications in Canada. In support of these positions, it has proposed a major reform of the regulatory system based upon joint federal-provincial regulatory cooperation and, in an important case involving interconnection with Alberta Government Telephones, is seeking a judicial ruling which would buttress federal jurisdiction and CRTC regulation of interprovincial telecommunications.[112]

Competition within the telecommunications sector has also emerged to some extent within the equipment manufacturing industry and in the interconnect industry – or what can more generally be referred to as the competitive supplier market. In equipment manufacturing, middle-range Canadian competitors like Mitel have established their place in domestic and export markets largely by developing products like small-and medium-sized PABX's which fit into a "niche" within the overall industry. Likewise foreign manufacturers of telecommunications equipment have also been establishing a continuing presence vis-a-vis Northern Telecom and Microtel within the Canadian domestic market. As a general rule, such competitive suppliers are naturally critical of vertical integration because it provides guaranteed markets for monopoly suppliers and impedes the efficient operation of the competitive market. Foreign equipment manufacturers are strongly opposed to vertical integration, viewing the practice as a restriction on trade and a discouragement to the operation of Canadian subsidiaries, but find it difficult to express these views credibly within the Canadian regulatory system.[113] Domestic companies like Mitel, appearing before the Restrictive Trade Practices Commission, have fought aggressively for liberalized terminal attachment but have been surprisingly favourable towards vertical integration in terms of Canada's overall position within the world telecommunications market.[114]

The recently emergent interconnect industry in Canada has become one of the most strident advocates of increased competition, arguing their case forcefully before the CRTC and the RTPC and increasingly in recent years before provincial regulatory bodies. Born out of the interim terminal attachment decision in 1980, this new industry at first cut significantly into a market which had previously been monopolized by the telephone companies and their suppliers. Caught unprepared for regulatory change, the telephone companies have had to change their marketing strategy so as to offer a wider range of products and services and now seem to be more than holding their own while the more successful of recent entrants into the interconnection market are consolidating their position in a young industry undergoing a not-unexpected shakeout. At the CRTC hearings on terminal attachment in 1982, the interconnect companies, loosely joined together with business users, pressed ardently for liberalization of terminal attachment regulations as the best way of promoting increased competition and providing greater consumer choice.[115] More recently, however, the major interconnect companies—exclusive of course of the telephone companies and now of the users as well, have joined together in the Association of Competitive Telecommunications Suppliers (ACTS) as a way of better expressing their view that virtually open competition in terminal attachment and an end to monopoly supply conditions is necessary.[116]

For their part, the cable companies and the computer industry are both potential as well as actual competitors with the telephone companies in Canada. Each has the capacity to some extent to distribute services among users, thus effectively bypassing the public switched telephone network. The cable companies have long seen themselves potentially as alternative common carriers in the provision of non-broadcast services such as remote sensing, teleshopping or videotext, all of which can be supplied either by coaxial cable or by telephone lines. While many of the cable companies across Canada are still oriented only to broadcast programming, Rogers Telecommunications and Le Groupe Videotron are among the most advanced in moving towards non-broadcast services. Dating back to the days when many of the telephone companies refused pole attachment to the cable companies, the latter have been particularly critical of the monopoly privileges exercised by the telephone companies.[117] The continued vulnerability of the cable companies to telephone company monopoly is particularly evident in Saskatchewan and Manitoba where the government-owned telephone companies control the distribution of cable services. Rather than being proponents of open competition, then, the cable companies want continued regulation of the telephone companies to prevent abuses of their monopoly power so as to create the conditions under which effective inter-industry competition can develop in areas like non-broadcast services.[118]

In terms of a situation where a competitive industry confronts a regulated industry rather than where two regulated industries are involved, emergent competition between the computer industry and the telephone companies is instructive. The computer industry in Canada, dominated by IBM but with a variety of smaller foreign and some Canadian firms providing equipment and services, is competing more and more with the telephone companies in the realm of computer communications.[119] While telephone companies have traditionally provided most of the local and long distance communications needs of computer users and service providers, the computer companies now see the possibility of offering local-area-networks and satellite transmission directly to provide for their communications requirements. While LANS are still of limited applicability and satellite transmission is presently controlled by the federal government and the telephone companies, the computer industry in Canada has been pressing for deregulation and increased competition as a way for them to move more deliberately into the computer communications field.[120] At the same time, it would not be unexpected if Canadian telephone companies were to follow the example of the newly-competitive AT&T and offer computer communications services and even computer terminals themselves in competiton with the computer industry.

Yet another form which competition is taking within the Canadian telecommunications sector is the deliberate attempt on the part of the regulatory authority to create a kind of structured competition in the area of cellular mobile radio. Using its licensing powers with regard to the radio frequency spectrum, the federal Department of Communications moved in 1982 to call for applications to provide cellular mobile services in 23 designated markets across the country. Within each of these areas, the local telephone company would be licensed, if it so wanted, to provide the service in competition with a second licensee. After rejecting applications for licenses in several individual areas from CNCP Telecommunications, the federal government selected Cantel Communications – a cable-based consortium – to provide service in each of the designated markets.[121] Cantel – along with many of the other applicants – strongly supported the move to establish competition as the basis for providing cellular mobile service but, as the winning party, it is also forced into the position of defending the duopolistic variant adopted against more open competition at the same time that it must rely upon continued regulation by government to ensure that the telephone companies cannot use their existing market power to eliminate effective competition. This latter concern was reflected in the federal government's decision to have Bell Canada postpone the introduction of cellular mobile service within Ontario and Quebec until 1985 when Cantel could organize itself to provide equivalent service and move towards requiring the telephone companies operate through separate subsidiaries.[122]

The first stirrings of competition are also beginning to emerge in the satellite communications area in Canada. As the monopoly supplier of satellite communications services in Canada and as a member of Telecom Canada, Telesat Canada's role as a "carriers' carrier" seemed to preclude the possibility of effective competition. However, several developments in recent years suggest that the federal government is moving to open up at least some degree of limited competition within the satellite communications area. When the CRTC decided in 1981 that Telesat Canada should be allowed to lease partial channels to interested buyers, the federal government varied that decision to apply only to approved telecommunications carriers and broadcasters.[123] Likewise, the CRTC has attempted to make satellite communications more attractive vis-a-vis microwave transmission by approving reduced rates for telecommunications carriers and broadcasters presently using these services.[124] And more recently, the federal Department of Communications – in a move to create a wider community of users for satellite communications – has announced that ownership of uplink facilities for satellite transmission will be liberalized after 1986 so that large business and institutional users will be able to make more he Canadian market either directly or indirectly. AT&T, now separated from its local operating companies and restructured in a competitive mode for providing long distance and enhanced services as well as telecommunications equipment, has become a convert to competition after years of being the major defender of monopoly practices in the United States. It now views the American telecommunications scene as being thoroughly competitive, with a great number of companies providing telecommunications to the Canadian market either directly or indirectly. AT&T, now separated from its local operating companies and restructured in a competitive mode for providing long distance and enhanced services as well as telecommunications equipment, has become a convert to competition after years of being the major defender of monopoly practices in the United States. It now views the American telecommunications scene as being thoroughly competitive, with a great number of companies providing telecommunications goods and services and itself as exercising no dominant "market power".[126] As a provider of long distance services in competition with MCI and GTE Sprint among others, it argues that the FCC should drop its prior restrictive regulation of AT&T long lines vis-a-vis other competitors and let all players play on a "level playing field". Moreover, AT&T Technologies as its equipment manufacturing arm is being drawn more and more to export markets as its role in the domestic American market comes to be challenged by other companies. Thus, Canadian telecommunications carriers and suppliers face the prospect of increased competition in the Canadian market as a consequence of the AT&T divestiture as well as other developments in the world telecommunications market.[127] In some cases, this competition will be direct as American firms like AT&T Technologies move to improve their position in the Canadian telecommunications equipment market but it will likely also take indirect forms, as presently seems the case in British Columbia and perhaps elsewhere, when Canadian long distance traffic leaks across the border for transmission by American long distance carriers to American or even eventually back to Canadian destinations. With some important differences, the transformation which has taken place in the role of monopoly and competitive providers of telecommunications goods and services in the United States may well provide a foretaste of things to come in Canada.

In terms of the provision of telecommunications goods and services, the major players are mostly in place in Canada. Between the historic monopoly telephone companies and "the Competition", there are clear differences of position and interest but there are also important differences within each group on how they assess the benefits of monopoly, their attitudes towards increased competition, the impact of new technologies, and the continued role of regulation. Within the telephone industry itself, the common mind-set or ideology which used to predominate has begun to break down as the various telcos find their interests and regulatory environments diverging more and more. On the matter of monopoly, many telephone companies are naturally defensive of regulated monopoly and its benefits and accomplishments in telecommunications but others are cautiously committed to an increasingly competitive future. On the need for increased competition, the various firms and industries which comprise "the Competition" hold often strikingly different conceptions of how competition should work within the areas of the telecommunications sector in which they operate and present rather varied arguments in its support. The impact of technological change, both on the telephone companies and their competitors, is already significant and gives every indication of increasing and reinforcing the movement toward increased competition. As well, providers of telecommunications goods and services are virtually unanimous in agreeing that the regulatory system, both federally and provincially, requires reform, although there is not nearly the same agreement on the precise nature of such reform.

Consumers of Telecommunications Goods and Services

Consumers of telecommunications goods and services – business and residential and other – have become increasingly active in the political and regulatory process during the 1980s. Since the system interconnection case, when some forty companies and organizations representing hundreds of different interests intervened in the proceedings, telecommunications users have begun to receive more and more attention and their interests have become increasingly influential.

As Table 8 illustrates, a significant concentration of telephone company revenues is derived from a relatively small proportion of subscribers, whether business or residential, and it is this fact that makes "bypass" potentially attractive to many users and the most active elements within the user communities so important to telecommunications providers. Developments in the United States where business users have become powerful interest groups and where public decision-makers are increasingly feeling the wrath of residential consumers are also helping to focus debate in Canada on the broader implications of telecommunications policy and regulation but there are still substantial differences between the Canadian and American situations. Internal differences among the broad groupings of business and residential users are considerable, taking into account factors such as the volumes and types of telecommunications services used, the extent of usage, the income of the user and the location of the user, whether urban or rural. In addition, there is also the increasing role played by public interest groups and "experts" in telecommunications regulation. Finally, as the issues themselves have developed, the focus of attention on the part of users has shifted from just getting greater competition in telecommunications to an emphasis on what constitutes meaningful competition as well as avoiding some of the negative consequences that might be attendant upon increased competition.

Table 8
Concentration of Sources of Revenue

Telco	Percentage of Subscribers	Percentage of Revenues
BC Tel[1]	5% business	77% of toll revenues
	5% residential	48% of toll revenues
Atlantic Province Telcos, Collectively[2]	5% business	60% of toll revenues
	5% residential	20% of toll revenues
Sasktel[3]	7% business	54% of toll revenues

Source: 1. Memorandum of Evidence, Interexchange Competition and Related Issues, April 30, 1984, Appendix 1.
2. MT&T, NB Tel, Newfoundland Tel and Island Tel, Submission to the DOC Telecommunications Policy Review, May 14, 1984.
3. Government of Saskatchewan, Submission to the DOC Telecommunications Policy Review, May 14, 1984.

Business and Institutional Users

Business users have been among the most vocal of intervenors in recent CRTC hearings on the issue of the role of competition in telecommunications but their concerns are shared equally by a host of other large institutional bodies in the public sector. The central themes in their attack on the established regulated monopoly in the telephone industry have been that competition would result in lower costs for telecommunications services, allow access to more specialized services and provide them with greater flexibility in their business planning. More or less explicitly, they have been arguingthat the era of regulated monopoly in telecommunications is now past and that competition is not only possible but inevitable because of changed conditions. Heightened international competition in the private sector and deficit-ridden government budgets in the public sector have focused attention on costs and the new technologies offer potentially large savings for some of these organizations.

Major business and institutional users have been very much the engine behind the push for competition in telecommunications. These are the subscribers which provide such high proportions of telco revenues and have the most to gain from the substantially lower costs associated with bypass technologies. Among major individual private sector users, one of the most forceful has probably been the Royal Bank which has taken the lead among the banks and maintains a lively concern with telecommunications issues both domestic and international. The Royal Bank has pressed for major reductions in long distance rates, modernization of local facilities and increased competition in general, and has shown a particular interest in international telecommunications issues.[128] As well, major multinational companies, both through their success in achieving a significant degree of deregulation in the US market and directly through their Canadian subsidiaries, have lobbied for greater liberalization in the equipment market and for more competition in the delivery of telecommunications services. The Canadian Business Equipment Manufacturers Association (CBEMA), an organization of major manufacturers of data processing equipment and office products which includes many of these same subsidiaries, along with individual firms like IBM, have been major spokesmen for this position.[129] In the public sector, there is also substantial interest in lower telecommunications costs. The Ontario Hospital Association (OHA) played a leading role in initiating the terminal attachment proceedings and there are clear indications of interest from many hospital, university and government departments and agencies which are heavy telecommunications users.[130] Several provincial governments including Ontario, which already operates its own separate Ontario Hydro network, and the federal government through its Government Telecommunications Agency must have a clear interest in lower costs and bypass technologies so that they, too, might be tempted to bypass the telephone network.[131] The importance of all these organizations, both private and public, rests on two foundations. First, their political influence is considerable, well-financed and persistent whether it originates from large domestic or multinational firms or from major public institutions. Second, they have the potential, as a result of their heavy usage, to become providers for many of their own needs through the use of alternative communications links.

There is also substantial interest in competition and rate rebalancing among medium and small business users. One major spokesman for their interests is the Canadian Business Telecommunications Alliance (CBTA), or what used to be called the Canadian Industrial Communications Assembly, a broadly-based organization which, although its membership list is secret, is primarily a representative for large and middle-sized companies and essentially a middle-management organization for business telecommunications managers. CBTA has lobbied hard for increased competition and takes special interest in the need for competition in data communications and in resale and sharing of communications services.[132] As well, it also supports both an easing of regulatory rule-making and the use of bypass technologies to provide new services. While CBTA has been increasingly active in the regulatory process, its attitude toward regulation has been somewhat ambiguous, probably because of the diverse interests of its members and their continuing dependence on the telcos. Thus, although it has pressed for increased competition, it has also been concerned that the CRTC be able to continue to effectively regulate the telephone companies.[133] Further, while CBTA has been an effective lobby for large and medium-sized businesses, it does not appear necessarily to represent the interests of small firms and professionals and it may be that they have much less to gain from increased competition in telecommunications. In summary, then, business and institutional user groups have tended to be supportive of increased competition, the use of bypass technologies and a relaxation in regulatory decision-making but at the same time they have shown some concern for a continued policing role for the CRTC.

Residential Users

Until now no telecommunications issue in Canada has aroused widespread interest or concern among average residential users and this has compounded the difficulties faced by public interest groups in mobilizing broadly-based support. There is also considerable diversity of interests among residential users taking into account such factors as urban/rural residency, level of income and their usage of the telephone system. Residential users are an amorphous and poorly-organized constituency and there are several organizations and groups which claim to speak for them. However, as recent public protest over rate increases in the United States suggests, the public can become a formidable political force when these issues do emerge. Moreover, since it is almost certain that the net direction of residential service rates is upward, it is probable that there will be more reason for residential users to organize and perhaps greater differentiation in their interests than presently seems to exist in Canada. What this portends is increasing difficulty in determining where the public interest really lies.

The Consumers' Association of Canada (CAC) is the most widely known defender of the public interest in Canada. It is a grassroots, non-profit, voluntary organization with an executive which is both representative of consumers across the country and has the responsibility to approve CAC policy positions. Moreover, unlike the more episodic efforts of most public interest groups, the CAC has long-term funding—some of which comes from the federal government—and, through its regulated industries programme, it maintains a "watching brief" in the area of telecommunications policy and regulation.[134] The CAC has been preoccupied with the need for more price competition and taken a positive attitude toward bypass technologies as one means toward that end. It has also been concerned with the potential for anti-competitive behavior on the part of the telcos who might use their monopoly services to subsidize their competitive services.[135] Finally, the CAC has been an active intervenor in the regulatory process at the federal level, and increasingly at the provincial level as well, and has stressed the need for the CRTC to maintain its powers to effectively regulate the telephone industry. If there is a potential contradiction in the CAC position, it may well hinge on the incompatibility of increased competition with the maintenance of low residential rates.

A second public interest group representing one particular group of residential users is the National Anti-Poverty Organization (NAPO). NAPO is also a non-profit voluntary organization largely funded by the federal government's Department of National Health and Welfare and attempts to speak and lobby for the interests of low income Canadians. NAPO has an elected board of directors and a large membership including the poor themselves, individual supporters of NAPO policies, and about 160 to 170 non-profit group memberships from organizations which themselves are involved in helping low income Canadians.[136] NAPO has been critical of the recent emphasis on competition, arguing that it is based on a "fallacy of technological imperative" and sees the move toward deregulation, competition and the adoption of bypass technologies as likely to produce substantial income transfers away from lower income Canadians and especially to threaten universal access to the telephone network.[137] NAPO supports the continued regulation of the telephone industry and has expressed concern both about the ability of the CRTC to monitor the telcos and avoid serious damage to local service and also the danger of political interference in the regulatory process. As new issues emerge such as local-measured-service and given the limited available options, it is probable that additional forms of interest group representation for residential users will spring up.

Other Players

One of the major trends taking place in recent years has been a noticeable broadening of the range of players involved in telecommunications policy and regulation in Canada. In addition to business and institutional users and residential subscribers, other participants in the regulatory and political process are beginning to emerge. For example, organized labour is showing a greater interest in matters of telecommunications policy and regulation in Canada. The Canadian Federation of Communications Workers (CFCW), comprising both the Communications Workers of Canada and the Telecommunication Workers Union (TWU), appeared sporadically at some of the earlier CRTC public hearings but has now become a fixture in regulatory proceedings at the federal and, to a lesser extent, at the provincial level. In its submissions, the CFCW has expressed concern about the impact of technological change on jobs within the Canadian telecommunications sector and skepticism about the extent to which increased competition will create new jobs rather than merely displacing old ones. More recently, as well, the CFCW has become more aggressive, attempting to counter to some extent the favourable image presented by the telecommunications companies through their extensive advertising and undertaking an expensive media campaign to warn Canadians about the dangers of increased competition in long distance service.[138]

One very specialized group within the user community is the "experts" who have emerged to deal with telecommunications issues and increasingly to set the policy agenda. Telecommunications policy and regulation in Canada is becoming awash with experts whose skills and opinions are relied upon extensively—perhaps too extensively. Whether they operate as academics or consultants or officials, work within the private sector or government, and appear before regulatory agencies or at conferences, experts have—for better or worse—become indispensable to the way in which telecommunications regulation is handled in Canada and elsewhere. It is usually not difficult to identify the positions and interests of business users or residential users and to take them into account in analysing issues. It is more difficult to assess the role of experts as players in telecommunications regulation and to compensate for their biases. One economist has argued, in discussing the telecommunications regulatory process in Canada, that "lawyers' values" have become too predominant and that "it is unclear that it is in society's interests to have those with the biggest budgets, best lawyers and greatest ability to cross examine, determine policy".[139] At the same time, one might just as well question the important role of economists whose emphasis on economic efficiency and the innate superiority of competition is one that many outside the profession do not share. In the confusion of expert voices which rise to speak on telecommunications issues, there is a real danger that the interests and preferences of the average user of telecommunications services will not be heard.

Thus, consumers of telecommunications goods and services are becoming increasingly organized and active in Canada. Business and institutional users clearly have the most to gain from possible changes in telecommunications policy and regulation and are becoming a potent interest group, although not yet as well organized and active as in the United States. Residential users also have a major stake in possible changes in telecommunications policy and regulation in Canada but, as a general rule and especially in the short term, they probably have more to lose than to gain and suffer from the absence of a unequivocal position and forthright champion for their concerns. However, perhaps what is most striking about consumers of telecommunications goods and services as a category is the increasing entrepreneurship and energy which is being devoted to telecommunications issues and there is strong reason to believe that this will continue in the coming years as the impact of technological change and increased competition becomes more evident.

The Role of Public Decision-Makers

Public decision-making on matters of telecommunications regulation in Canada takes place within a system which has what Richard Schultz has referred to as a "Rube Goldberg" quality to it.[140] It is not only the fact that the federal government and seven of the ten provinces presently exercise jurisdiction over the major telecommunications companies. What is even more to the point is that the number of telecommunications providers, regulatory agencies and government departments across the country is multiplied by at least a factor of eight, the need for mechanisms of coordination and cooperation within both the public sector and the private sector is greatly increased, and the obligation placed on providers and users to operate in a wide variety of public decision-making forums in order to promote and protect their interests is much greater. However, as another participant in the process has put it, it is not merely the "structural inelegance" of the system which is at issue but rather its numbing complexity and underlying effectiveness.[141] The positions, interests and perceptions of public decision-makers must therefore be examined on several different levels in order to generate an appropriate profile:

> First, the regulatory system at the federal level involving the CRTC, the Department of Communications and other relevant federal departments and agencies;
>
> Second, federal-provincial relations in the telecommunications field and the positions and interests expressed by individual provinces;
>
> Third, the regulatory system at the provincial level and especially its similarities and differences vis-a-vis the federal level;
>
> Fourth, the partisan, electoral and public opinion considerations bearing upon telecommunications regulation.

We will now proceed to profile these major public decision-makers according to their positions, interest and perceptions on matters of monopoly, increased competition, technological change and the role of regulation.

Policy and Regulation at the Federal Level

Public decision-making at the federal level in Canada has been conditioned very much by a fundamental difference in the mandate given to the federal Department of Communications and that under which the CRTC operates. The Department of Communications holds statutory responsibility for developing policy and regulation for the efficient and effective conduct of telecommunications in Canada and its authority presumably extends to all provinces. The CRTC, on the other hand, exercises delegated regulatory authority only over certain telecommunications carriers operating within federal jurisdiction – although admittedly the largest ones operating in Ontario, Quebec and British Columbia – in relation to prices, rate of return, quality of service, among other matters and its decisions can, of course, be rescinded or varied on appeal by the federal Cabinet. It is certainly possible to argue, however, that the influence of the CRTC on telecommunications policy and regulation in

Canada—despite its seemingly more limited mandate—has at least until recently been much greater than the influence of the Department of Communications. As well, it should be noted that other federal departments and agencies such as the Director of Investigation under the Combines Investigation Act and the Restrictive Trade Practices Commission have been involved in the competition policy aspects of telecommunications regulation while the Foreign Investment Review Agency and the recently-amalgamated Department of Regional and Industrial Expansion (DRIE) are increasingly concerned about its industrial policy potential and implications. Thus, public decision-making at the federal level operates as a somewhat unstable triad comprising the CRTC as the regulatory agency, DOC and other relevant departments and agencies as policy-makers and interested parties, as well as the various provider and user interest groups which seek to influence federal policy and regulation. Moreover, policy and regulation at the federal level is itself embedded in broader public decision-making process involving political parties, elections and public opinion and where federal action or inaction has both intended and unintended consequences for policy and regulation at the provincial level.

The CRTC, since it took over responsibility from the Canadian Transport Commission in 1976, has placed its distinctive stamp on telecommunications regulation at the federal level and, by example and implication, across provincial jurisdictions in Canada as well. Its decisions, the way in which they are reached and the consequences which they have are particularly important because they apply to roughly 70 percent of the Canadian telecommunications sector. While it is difficult for a number of reasons to ascribe firm positions or clear interests to a regulatory body, it is possible to identify consistencies in their decisions and characteristic ways of dealing with similar matters and the CRTC is no exception.[142] A regulatory agency—like an appellate court—is a quasi-independent, collective, adjudicative body which speaks principally through its decisions and pronouncements. It is not supposed to engage in policy-making per se but rather to confine itself to licensing and rule-making activities but, especially in the latter instance and where there is no clear political direction, its action often spills over into policy-making. For whatever the reasons, during the late 1970s and early 1980s and especially with regard to its telecommunications decisions, the CRTC took on an implicit policy-making role, overstepping that thin line between regulatory agency and government department and sometimes overshadowing the Department of Communications.

The regulatory process which the CRTC has evolved for dealing with telecommunications matters should be examined not only because of its importance in setting nation-wide trends but also because of the strong views held by others about its merits and demerits. The CRTC has developed a considerable degree of specialization and sophistication in this area with a full-time Vice-Chairman and several commissioners devoting much of their attention to these matters and a staff of about 60 – or one-fifth of the Commission's total complement – providing expertise and support. The various types of cases with which it deals – periodic rate cases, routine tariff filings, and more elaborate issue proceedings – are initiated by applications made by the federally-regulated carriers except for issue proceedings which are often set in motion by the CRTC itself as a way of dealing with broadly-based or recurrent concerns. Its own rules and procedures allow for input from a wide range of affected interests and are strikingly formal in comparison with broadcasting proceedings and generally with those of provincial regulatory bodies. They allow for extensive argumentation through acceptance and encouragement of a wide range of parties and intervenors, the right to file memoranda of evidence and pose interrogatories to the various parties on their evidence, often lengthy public hearings, and submission of reply and final arguments prior to a decision being rendered. These procedures are particularly important because the CRTC must render its decisions exclusively within the context of the evidence presented. Moreover, the Commission has been most conscious of attempting to balance off the differential power of various parties and intervenors by holding public hearings in different parts of the country and by awarding costs to certain parties and intervenors requiring subsidization.[143] Nevertheless, the CRTC regulatory process is not without its critics. Some provincial governments and regulators feel that the CRTC is too sophisticated for its own good and engages in overregulation and are critical of the way in which the effects of CRTC decisions tend to spill over into their jurisdictions while other private sector participants in the process express concern about how its rules and procedures may allow some parties and intervenors to dance "the regulation waltz".

The hallmark of the CRTC's decisions on telecommunications from the mid-1970s onwards has been a cautious acceptance of increased competition within the Canadian telecommunications sector.[144] By the early 1980s, there had been a decided change in emphasis within CRTC decision-making. In a forthright discussion of the future of competition and regulation in 1981, the CRTC Vice-Chairman indicated that

> . . . since the new technologies have put in doubt the existence of those economies of scale that have hitherto been thought to exist, and since telecommunications markets are significantly expanding, the burden of proof should now be shifted. Those who contend that a monopoly position should be maintained in specific markets should have the burden of demonstrating either:
>
> 1) that the economic attributes of those markets warrant monopoly supply; or
>
> 2) that monopoly supply would further some legitimate social goal that cannot be achieved otherwise than by restricting competition.[145]

This shifting of the "burden of proof" which has been most apparent at the federal level, however, has not always taken place to the same degree among provincial regulatory authorities.

When one looks back systematically at the corpus of its decisions on the Telesat/TCTS merger in 1977, system interconnection in 1979, TCTS rates and Telesat practices in 1981, terminal attachment in 1982 and 1984, the Bell reorganization in 1983, and enhanced services in 1984, there is clearly a persistent pro-competitive bias but by no means a commitment to free and open competition and even a healthy suspicion about the appropriateness of American-style deregulation.[146] Although the CRTC can take no general stance on the matter, it is clear that commissioners and staff regard technological change as undermining traditional monopoly practices and making competition increasingly possible within Canadian telecommunications. At the same time, the CRTC is also very much concerned about the proper role of regulation within an increasingly competitive environment. Commissioners and staff are particularly proud of the fairness and flexibility of its rules and procedures and the ability of the public hearing process to bring forward all relevant interests and points of view for argument and deliberation. Any suggestion that the CRTC was too overloaded with work to make effective decisions or that the delay caused by its practices and procedures is excessive would also be rejected.[147] Thus, the CRTC can be described very much as the prime exponent and protagonist of "regulated competition".

The Department of Communications also plays an important role at the federal level in telecommunications policy and regulation. Through its Telecommunications Policy Branch, it oversees federal involvement in telecommunications matters. The Department of Communications has statutory authority under its own act, the ***Railway Act***, and the ***National Transportation Act*** "to promote the establishment, development and efficiency of communications systems and facilities in Canada" as well as to exercise licensing power over the use of the radio frequency spectrum, set standards for telecommunications equipment and conduct Canada's international communications activities.[148] From its origins in 1969, it has traditionally been a technology-oriented department and also very much involved in federal-provincial relations but, since the late 1970s, it has shifted more towards the social and industrial policy implications of telecommunications development. The Department of Communications has not, in the past, participated in a direct way in CRTC regulatory proceedings but, once decisions have been rendered, its influence comes to bear when the inevitable appeals to Cabinet from dissatisfied parties are made. Moreover, until the last couple of years or so, there has been a noted lack of clear and firm direction coming from the Department of Communications on matters of telecommunications policy and regulation.

It is instructive to trace through the policy positions and interests pursued by the Department of Communications through recent legislative and other initiatives. Between 1973 and 1975, it issued first a Green Paper and then a Grey Paper and engaged in a time-consuming and arduous process of attempting to evolve a comprehensive national communications policy for broadcasting and telecommunications which eventually foundered as a result of federal-provincial stalemate.[149] For a couple of years, the Department seemed to pull back from the battle and it is noteworthy that when, in 1976, Bell Canada first sought to reorganize by changing its Special Act, the proposed legislation was introduced as a private rather than a government bill and failed to secure passage.[150] Between 1977 and 1979, the Department introduced three successive—and very similar—pieces of national telecommunications legislation, setting out broad objectives for Canada as a whole and proposing several initiatives towards regulatory reform, but, in each instance, the proposed legislation never went beyond second reading in the House of Commons.[151] Again after 1980, the Department pulled back, devoting its attention to negotiating constitutional reform in the communications field with the provincial governments, but this likewise proved unsuccessful. More recently, in 1984, the Department put forward proposed legislation to respond to the

Bell Canada reorganization and modify certain aspects of the regulatory process – most importantly giving it the right to issue policy directives to the CRTC – but once again this initiative died on the order paper when the 1984 election was called.[152]

Until recently, the Department of Communications has had a somewhat muted and even contradictory commitment to increased competition in Canadian telecommunications. As one of its previous deputy-ministers saw it, there was a "monopoly-competition seesaw" at work in Canada and it is fair to say that a similar ambivalence has been present within the Department of Communications itself.[153] On the one hand, there has been strong support at times for continuation of the regulated monopoly status of the telephone companies across the country as the best way of providing quality local and long distance service in each individual province. To this end, a substantial tolerance for vertical integration within the equipment manufacturing industry, firm control over the expansion of satellite and international communications, and only a certain degree of limited competition by CNCP Telecommunications as a national common carrier merely reinforced the prevailing bias in favour of monopoly. Support for increased competition began to mobilize during the late 1970s as the impact of new technologies and of developments in the United States made increased competition within Canadian telecommunications appear more attractive. Taking its cue from the CRTC's cautious but consistently pro-competitive stance, responding to calls for some movement towards deregulation coming from an expanding array of providers and users, interested in the potential industrial benefits to be realized and conscious of Canada's export prospects within the telecommunications sector, the Department of Communications has moved with some equivocation but growing commitment towards policy premised upon increased competition. Departmental officials are aware of the threats posed by technological bypass in terms of undermining universal service and compromising Canadian sovereignty but some claim to be confident that this can be controlled with their existing powers. Moreover, they have become persuaded of the need for greater policy direction vis-a-vis the CRTC as a way of making the regulatory process work more effectively and allowing the federal government to better achieve government objectives.

In many ways, the Department's ongoing national telecommunications policy review,[154] initiated by the Liberal Minister of Communications in 1983, can be regarded as the triumph of the competition viewpoint. The minister's comments are worth quoting at some length. In a statement to the House of

Commons Standing Committee on Communications and Culture in May 1983 he said:

> The introduction of more competition in the provision of communications products and services will have important implications for the structure of the telecommunications industry. In order to ensure fair competition and prevent hidden subsidies, it may be necessary to require that competitive and non-competitive services be provided by different organizations. Bell has proposed a reorganization along these lines, and it has been approved by the government. It will be necessary to ensure that the public's right to basic telephone service at reasonable rates is not eroded in this process. It must also be recognized that in a country Canada's size, effective competition may be undermined if the market is fragmented among many competing suppliers. Accordingly, any major restructuring of the industry is likely to be marked by shifting alliances and the emergence of new coalitions, rather than by a flood of new entrants.
>
> It will also be necessary to improve the regulatory climate in which the telecommunications industry operates. It is essential that the government acquire the power to set the broad directions of telecommunications policy. While this would remove one of the main sources of confusion currently surrounding the regulatory process, the procedures of the CRTC should be reviewed with the aim of encouraging quicker decisions. Depending on the nature of the structural changes which occur in the telecommunications industry as a result of increasing competition, it may even be possible to dispense with regulation in some service areas. However, in the Canadian context, it is less 'de-regulation' than 're-regulation' which is the order of the day. Emphasis must be placed on making the regulatory process work more efficiently and not on eliminating public oversight. Important social questions are invariably at stake in major regulatory decisions.[155]

At least with respect to the desirability of competition in telecommunications, the DOC and the CRTC now seem to be moving toward the same policy goal.

Mention should also be made of the increasing role of the Director of Investigation under the Combines Investigation Act in arguing the case for competition within the federal government and before various federal and provincial regulatory agencies. As Canada's competition watchdog, the Director is responsible for investigating complaints about unfair competitive practices and pointing out how increased competition can be achieved not only in unregulated but also in regulated markets. Perhaps the Director's most dramatic involvement in the telecommunications area was the case he presented before the Restrictive Trade Practices Commission on vertical integration and interconnection practices. The Director initiated the proceedings with a devastatingly critical report, the so-called "Green Book", which charged that Northern Telecom (then Northern Electric) "has been an economic colony of Bell Canada for too long and that a spinoff of Bell Canada's controlling interest . . . would be in the public interest".[156] Following a series of public hearings which dragged on over a period of six years and during which the Director himself changed his position from one of forced divestiture to a competitive bidding proposal, the Restrictive Trade Practices Commission issued its findings in three parts. One instalment recommended measures to create and maintain a competitive terminal attachment market, the second effectively approved the Bell Canada reorganization so long as there was full public discussion of the proposal with respect to both subscribers and the telecommunications industry, and the third and final report sanctioned the continuation of vertical integration subject to certain comparative buying guidelines but did not go so far as to impose a system of competitive bidding.[157] It is important to note that the RTPC, in its final report, framed its decision more broadly than any mere domestic restriction of trade, which was largely demonstrated, and consciously accepted evidence and argument bearing upon such matters as the role of vertical integration within an "industrial strategy" and the implications of their decision for Canada's competitive position in the world telecommunications market.[158]

The Director of Investigation continues to appear regularly before the CRTC on telecommunications matters and increasingly before provincial regulatory bodies. On all occasions, his position is strongly in favour of increased competition, especially with regard to the long-term benefits of entry as well as the shorter-term implications in terms of price. In fact, he has emerged as the "Boy Scout" of competition – its most ardent supporter and unequivocal defender. The Director has intervened in all the major CRTC proceedings during the late 1970s and through the 1980s and argued strenuously in support of increased competition. The Director has also been a key witness at recent provincial regulatory proceedings on interconnection and terminal attachment matters.[159] At the federal level, the Director is concentrating his attention more and more on the conditions which promote and maintain effective competition in telecommunications markets. In this regard, he has begun to stake out a position on the need for structural separation through separate subsidiaries and an open approach to resale and sharing.[160] From his point of view, bypass is merely a form of technological competition and something to be encouraged rather than discouraged. And, not surprisingly, the Director has had little to say about jurisdictional or regulatory reform as a procedural matter. Competition – pure and simple – is the watchword.

Finally, a brief note on two considerations – deregulation and industrial policy – which have an important bearing on telecommunications policy and regulation at the federal level. The movement towards deregulation in Canada has thus far been largely unsuccessful though more so in the communications area than elsewhere.[161] There was a growing recognition through the 1970s of the weaknesses and shortcomings in telecommunications regulation on procedural as well as substantive matters. As early as 1973, the federal government first proposed that Cabinet be empowered to give policy directives to the CRTC but that proposal fell by the wayside when draft telecommunications legislation was not proceeded with during the late 1970s and no such power yet exists. In fact, it was the CRTC from 1976 onwards which has been the most consistent actor in promoting substantive deregulation through the series of decisions which it rendered on various telecommunications issues. Even the Restrictive Trade Practices Commission – which one might reasonably expect to be a supporter of pro-competition sentiment – eventually came down with what can only be called a most equivocal report on the Bell Canada-Northern Telecom vertical integration issue. And finally, the Economic Council's Regulation Reference which became the prime focus for efforts to reform the regulatory process and to promote substantive deregulation across a number of areas of public policy as well as the Parliamentary Task Force on Regulatory Reform produced thorough analyses of the problem and an impressive list of recommendations but have not yet had any real success in changing telecommunications regulation other than to reinforce what had already been accomplished by the CRTC.[162] More recently, however, there has been renewed interest in deregulation, both substantive and procedural, and its impact in the telecommunications field is likely to become evident in the years to come.

At the same time, there has also been a growing interest within the federal government in the possibility of pursuing a more explicit industrial strategy where telecommunications would be one sectoral component. The case for and against a more explicit industrial strategy has been argued extensively in Canada over the past decade and more. Since the mid-1970s, the Science Council of Canada has emerged as its most prominent advocate, arguing that Canada must pursue "technological sovereignty", exploit the opportunities offered by rapidly-developing communications and information technologies, and use state intervention to support designated firms and restrict the domestic market.[163] The case against a more explicit industrial strategy is more diffuse but finds expression in the Economic Council's and the Senate Foreign Affairs Committee's emphasis on free trade, provincial governments' concern with the potential impact on their economic development, and the strong pro-competition lobby which has developed both within and outside the federal government.[164] At the same time that the federal Department of Communications has espoused increased competition as the best way of serving both domestic and export objectives, there is also continuing interest within the Department and elsewhere in the federal government in exploring the implications of greater competition for industrial policy in the Canadian telecommunications sector.[165] As with deregulation, concern for industrial strategy provides an opening for argumentation over broader interests and considerations and reflects the broader bureaucratic and public decision-making environment within which decisions about telecommunications policy and regulation at the federal level must be made.

Federal-Provincial Relations and Provincial Government Positions

Federal-provincial relations on telecommunications matters have focused over the years primarily on two concerns – constitutional reform and mechanisms for consultation and coordination among federal and provincial governments. Attempts at constitutional change in the communications field date back to the early 1970s, when the federal government first sought to establish the "national dimension" of Canadian telecommunications by proposing a series of measures including "a single federal regulatory agency" which the CRTC became, consultative mechanisms to allow all provincial governments greater input into federal decision-making, and specific arrangements to allow Ontario, Quebec and British Columbia to participate in CRTC proceedings, all of which was designed to bring about a "harmonization" of federal and provincial roles and responsibilities in the field. The provincial response to this federal initiative took the form of a common front position and argued instead for "a realignment of roles and responsibilities" which would, at the request of the particular provincial governments concerned, give them regulatory control over "carriers having their facilities within the boundaries of a province", except for CNCP Telecommunications, Telesat Canada and Teleglobe where federal jurisdiction was tacitly acknowledged, as well as jurisdiction over all aspects of cable distribution systems with the exception of federal broadcasting services.[166] With regard to a transfer of control over federally-regulated common carriers to the provincial governments involved, it is interesting to note that the federal government indicated during the discussions its willingness to consider such a possibility in the case of BC Tel, but not in the case of Bell Canada. By the latter part of 1975, the issue of jurisdictional reform had bogged down, with both levels of government holding firm to their opposing positions, and in subsequent years attention shifted primarily to the matter of cable delegation where progress seemed initially to be possible.

By 1978 and 1979, however, there was heightened interest in telecommunications regulation as a result of the CRTC's landmark decisions in the area, the federal government's ill-fated attempts to pass comprehensive telecommunications legislation, the spadework being undertaken by a federal-provincial task force established to examine competition and industry structure, and the Clyne Commission's attention to the implications for Canadian sovereignty. Most importantly, however, communications emerged as one of a series of matters considered during the constitutional reform exercise which began in 1980.[167] The position taken by the federal government was territorial in nature, asserting that there was a "national dimension to telecommunications as well as a local one" and that "what goes on within a province should be provincial and what is interprovincial or international should be federal". Specifically, exclusive federal jurisdiction would include national telecommunications and satellite carriers (CNCP Telecommunications, Telesat and Teleglobe), interprovincial and international rates and services, and technical standards and interconnection of systems while exclusive provincial jurisdiction would extend to the intra-provincial operations of all telecommunications carriers (including Bell Canada, BC Tel and Terra Nova Tel) and local cable systems except for "national programme" service and non-Canadian service. The provincial position was more varied but equally inflexible and its "best efforts draft" continued to assert exclusive jurisdiction over all telecommunications works situated within a province as well as over cable distribution systems (except for broadcast networks), while acknowledging only concurrent jurisdiction with the federal government over interprovincial carriers with provincial paramountry and over the space segment of communications satellites with federal paramountry. However, as is well known, the constitutional reform episode in the communications field came to no conclusion at that time and, more recently, interest has shifted to possible extra-constitutional solutions which might be brought about without fundamental constitutional change.

Progress has also been slow in the consideration of extra-constitutional changes that would allow for the development of common principles in the handling of issues evolving from the emergence of competition in telecommunications. In March 1978, a Federal-Provincial Working Group on Competition/ Industry Structure was established to consider how competitive telecommunications services could best be provided in a manner consistent with the public interest. The Working Group reported in October 1979, following the CRTC system interconnection decision, and dealt with a total of 21 issues organized into four categories—competition, common ownership and control, services and facilities and jurisdiction and regulation.[168] Although no concrete political decisions could then be taken, the Working Group was authorized to continue its efforts and did help to establish some common ground among communications ministers and officials on such issues as the impact of competition on universality, the potential for cross-subsidization of competitive services by monopoly services, what boundaries to establish between competitive and monopoly services, and the consequences of decisions taken in one jurisdiction on policy being developed in another jurisdiction.[169] At the same time, a second Working Group on Joint Regulatory Mechanisms was also established and reported back in May 1982 after the collapse of constitutional negotiations over communications. This Working Group proposed a number of alternative approaches to rationalizing the regulatory process, in particular proposing that some statutory basis be given to an actual inter-jurisdictional regulatory board and/or that some degree of coordination might be achieved through the use of committees of regulatory staff from across the country.[170] Yet another initiative came from the CRTC which began, in 1983, to make soundings about possible membership in the Canadian Association of Members of Public Utility Tribunals (CAMPUT) as a way of promoting greater inter-regulatory cooperation.[171] While extra-constitutional solutions have been difficult to achieve, it is clear that there is certainly more activity on this front than in terms of constitutional negotiations.

The positions taken by individual provincial governments on telecommunications matters vary considerably and can be divided for purposes of examination into three categories: the prairie provincial governments which own as well as regulate the telephone companies; the Atlantic provincial governments which regulate them but do not own them; and Ontario, Quebec and British Columbia which neither owns nor regulates the telephone companies which operate within their boundaries but come under federal jurisdiction. As both owners and regulators of the telephone companies, governments in the three prairie provinces have a clearer and more definite stake in the future of their provincial telcos and often a rather distinctive position on federal-provincial relations on telecommunications matters. In each province, government ownership developed less as a result of any ideological commitment but rather in order to make telephone service available to a dispersed population when privately-owned companies, especially Bell Canada, showed what was considered to be insufficient interest in the extension of service. The policies of the prairie governments reflect, in part, their shared experiences, their strong regional loyalties, and their anti-federal government/CRTC attitudes and it is the prairie provincial governments, especially Saskatchewan and Manitoba, which have played a crucial role in federal-provincial relations with regard to telecommunications.[172] However, this major role in federal-provincial relations flows not just out of jurisdictional concerns but also from the very real distributional implications associated with the high toll dependence of the prairie telcos and their resultant greater vulnerability to reductions in shared revenues from long distance service.

The Manitoba government, whether in the hands of the New Democrats or Progressive Conservatives, has taken a strong anti-competitive position, arguing that it sees no significant public benefit to be gained from increased competition in telecommunications. It has been particularly concerned about the potential impact of the loss of toll revenue on universality and on the cross-subsidization and rate averaging that makes universal access possible.[173] In its submission to the federal telecommunications policy review, it suggests that Canadian regulators should not allow themselves to be pressed by a few large users and the threat of bypass into changing the existing service provision system in ways that would be contrary to the public interest. Instead, DOC should use its regulatory authority over the radio spectrum to control potential sources of bypass since most of them involve radio communications. In particular, Manitoba has been particularly concerned over the years about the potential use of satellites in bypassing its system for toll purposes.[174] MTS and the government itself remain fully committed to both government ownership and a single integrated telephone network and stress that any changes which significantly affect the provinces should be the result of federal-provincial negotiation rather than regulatory decision-making. Further, the evidence seems to suggest that, although the Progressive Conservative and New Democratic governments of Manitoba during the 1970s and 1980s differed sharply on many issues, with regard to telecommunications there has been substantial agreement in favour of the existing non-competitive system and opposition to any fundamental changes in that system.

Saskatchewan has in many ways become the leader among the prairie provinces in articulating their views on federal-provincial issues and in stressing the inherent advantages of the existing system.[175] While increased competition is seen to involve some limited benefits, it also threatens universal access through its attack on the revenue settlement system and thus on cross-subsidization. The especially low population density in Saskatchewan and the fact that it is the most heavily toll dependent of all the provinces makes it particularly vulnerable in this area. The government acknowledges the possibility of rate rebalancing without competition but, at the same time, emphasizes the need for compensation for revenues lost should competition be allowed. It also argues that the issue of whether any further increase in competition should be permitted must be resolved at the political or ministerial level, as a result of federal/provincial negotiation, rather than through the CRTC decision.[176] Experience with the Manitoba-Canada Agreement of 1976 and the differences that developed between the DOC, which negotiated the agreement, and the CRTC, which refused to honour the agreement, is frequently cited both in Manitoba and in Saskatchewan as underlining the need for the federal government to be able to give direction to CRTC decision-making. As well, the capacity of the CRTC to seriously impinge upon telecommunications policy in other jurisdictions is seen to be a serious failing in the existing regulatory system.

The Alberta government has generally followed the lead of Saskatchewan and Manitoba, sharing their general concerns about the distributional and jurisdictional implications of federal telecommunications policy. However it has also played a less active role in federal-provincial relations in this area than its sister provinces. Alberta has expressed growing concern about the impact of competition on its interprovincial long distance revenues and the consequences this might have for universality reflecting, with Saskatchewan and Manitoba, its heavy toll dependence.[177] At the same time, Alberta has been more willing to countenance competition beyond the existence of a monopoly in local and long distance services and has taken a more commercial attitude on telecommunications issues. Thus, for instance, Alberta has taken a more liberal stand on the issue of terminal attachment than the other two prairie provinces.[178] The Alberta experience, in particular, suggests that government ownership of the telco may be a less overriding factor in determining telecommunications policy and regulation than would be suggested by the experience of Saskatchewan and Manitoba alone.

The four Atlantic provincial governments regulate but do not own the telephone companies which operate within their territory. In each case, a public utilities board oversees the provincial telephone company along with other utilities and, potentially at least, exercises much of the same powers as the CRTC. Provincial governments in the Atlantic provinces have also been most concerned about the distributional implications that might result from increased competition within their provinces and the need for better federal-provincial consultation and coordination in dealing with telecommunications regulation. These concerns reflect not only the moderately high toll dependency of their telephone companies in terms of overall revenues but also the inevitable spillover effect of policy and regulatory decisions taken at the federal level. Within the Atlantic provinces, the telephone companies are important sources of investment and employment and instruments of economic development and in this regard government officials see relatively little difference between the role of their privately-owned telephone companies and the publicly-owned companies which operate in the prairie provinces. For these reasons, several of the Atlantic provincial governments have played an active role in federal-provincial relations on telecommunications matters.

Prince Edward Island, New Brunswick, Newfoundland and Labrador, and Nova Scotia all have particular concerns about telecommunications policy and regulation but share a generally similar viewpoint which often comes to be expressed jointly in federal-provincial relations. Prince Edward Island, in spite of its size and rather against it wishes, has actually led the country in moving towards liberalized terminal attachment. During the late 1970s, its public utility board turned down a request for liberalized terminal attachment but, in a landmark decision, this was overturned by the courts in 1979 and, as a result, the public utility board and Island Tel have been forced to accept liberalized terminal attachment as a "fact of life".[179] New Brunswick, in its positions on federal-provincial relations, has continually expressed concern about increased competition in telecommunications and its impact on universal service and has also worried about the potential use of satellites to bypass the provincial telephone company. At the present time, however, its public utilities board is conducting an issue hearing on liberalized interconnection and terminal attachment but no decision has yet been rendered.[180] Newfoundland and Labrador, for its part, has been perhaps the most strident among the Atlantic provincial governments in pressing for full provincial jurisdiction over telecommunications. This has been particularly the case because it has to grapple with the problem of having one of its major telephone companies regulated federally while the other is provincially-regulated.[181]

Far and away the most important actor within the Atlantic provinces and a leader nationally on telecommunications matters has been Nova Scotia. Government officials in Nova Scotia as well as its Public Utilities Board have been very much concerned about the impact of increased competition on universal access and the quality of telephone service within the province.[182] While acknowledging that "bypass" is a real threat that must eventually be dealt with and agreeing that increased competition within the telecommunications sector is probably inevitable, they are worried that the hard-won benefits of regulated monopoly will be lost in any head-long movement towards deregulation. Moreover, they have expressed concern about how the CRTC has taken it upon itself to examine interprovincial long-distance rates and practices and how this interferes with the ability of provincial regulatory bodies to exercise control over the telephone companies within their jurisdiction. They have been in the forefront of the movement to develop new regulatory arrangements whereby the degree of overlap and interference between the two levels in dealing with telecommunications issues could be reduced.[183] And finally, they point by way of example to the numerous small community telephone systems such as the Cumberland Rural Telephone Company (CRTC) which continue to operate within their province and wonder how the "other" CRTC with its pro-competitive bent would handle its problems.[184]

Ontario, Quebec and British Columbia are, of course, all provinces where the telephone companies are regulated by the CRTC under federal jurisdiction. This places their respective provincial governments in a strange situation. Each of these provincial governments believe telecommunications to be an increasingly crucial element in their economic and social development and, especially in the case of Ontario but also in the other two provinces as well, the provincial governments have devoted considerable attention and staff resources to telecommunications matters. Nevertheless, they are presently able to express their legitimate interests in telecommunications policy and regulation within their boundaries only through interventions in CRTC regulatory proceedings, although their views and interests are obviously taken most seriously by the CRTC and the federal Cabinet. Moreover, Ontario, Quebec and British Columbia have, with a couple of exceptions, participated quite actively in federal-provincial and interprovincial activities, supporting, for example, the common front developed by all provincial governments vis-a-vis the federal government's constitutional position but also working jointly to explore the competition and regulatory reform issues. Despite this substantial similarity of goals and circumstances, however, the three provincial governments often do so for very different reasons and, in addition, have their own specific concerns.

As with many things about Ontario politics, there is an element of "smoke and mirrors" about Ontario's position and interests on telecommunications matters. Since the late 1970s, the provincial government has taken a strongly pro-competitive position, arguing both in terms of economic efficiency and in terms of Canada's position in export markets, and seemingly at odds with Bell Canada's position and that of the Quebec government. With regard to system interconnection, terminal attachment and vertical integration, Ontario eventually supported CNCP's application for system interconnection, favoured an openly competitive terminal attachment market and, with some reservations, opposed continued vertical integration between Bell Canada and Northern Telecom.[185] Increasingly, as well, Ontario sees the potential for increased competition in areas like enhanced services and satellite communications.[186] At the same time, however, the Ontario government is basically satisfied with the facilities and quality of service which Bell Canada provides to the province. Not only in terms of the integrity of that network but also with respect to any impact on Ontario's independent telephone companies, it is concerned about the growing threat of bypass technologies.[187] At least indirectly, it is also concerned about the effects of increased competition in long distance service on local service prices. Moreover, as a province with substantial equipment manufacturing capacity and good prospects for the further development of high-tech industries, the provincial government must be concerned about the industrial strategy aspects of telecommunications regulation. Finally, on jurisdictional and regulatory matters, the Ontario government supports the interprovincial common front and the need for better regulatory coordination and consultation procedures.[188] However, Ontario officials seem to feel that jurisdictional wrangling should be put on the back burner for the time being and attention should be directed to improving the operation of the CRTC as a regulatory body through closer political control and making sure that Ontario's views and interests continue to be taken seriously in decision-making. In point of fact, Ontario would not be all that happy to see jurisdiction transferred to the provincial level and Premier Davis' statement some years ago as to "Why should I want to regulate Bell Canada?" still stands.

Quebec has been probably the major protagonist the last fifteen years in pressing for expanded provincial jurisdiction over telecommunications and other areas of communications. During the 1970s, it was the prime mover in organizing the provincial common front and has confronted the federal government aggressively on jurisdictional matters.[189] Quebec's long-standing goal has been to wrest virtually total control over communications, including telecommunications, from the federal government and place it under provincial government control. Not surprisingly, continued commitment to this goal—whether or not it is likely to be achieved—colours the Quebec government's views on telecommunications matters. Unlike Ontario, it is unabashedly pro-monopoly, regarding the traditional methods of regulated monopoly as still valid in their application to Bell Canada and the other telephone companies operating within the province, and it is very much supportive of Northern Telecom which maintains important research and development and manufacturing facilities in the province.[190] It sees a much smaller role for competition within the provincial telecommunications sector and has been critical of the pro-competitive trend of recent CRTC decisions, even though it does not always take a very active part in participating in CRTC proceedings. As well, because of lower per capita long distance calling and differences at the local level, it may view the threat of technological bypass of Bell Canada facilities less seriously than does Ontario. Likewise, Quebec has placed considerably less emphasis on regulatory reform, given the fact that it disputes the right of the federal government to exercise jurisdiction over telecommunications in Quebec.[191] Much of the recent interest on the part of the Quebec government has been in the possible provincialization of Bell Canada into separate Quebec and Ontario companies. An important study in 1982 examined the economic and legal aspects of establishing Bell Quebec and concluded that such an option would be possible but not necessarily beneficial to Quebec subscribers and taxpayers.[192] Nevertheless, the lure of a Bell Quebec remains as one of the possible options for Quebec, particularly in the absence of significant jurisdictional and regulatory reform.

British Columbia, on the other hand, shares with Quebec the goal of exercising provincial regulatory control over telecommunications but for quite different reasons. In fact, at one point in the constitutional reform negotiations, British Columbia was offered delegated authority over BC Tel and its operations within the province but no comprehensive final agreement was reached and the federal government did not subsequently renew the offer.[193] The underpinning to British Columbia's position on telecommunications matters is substantially different from that of Quebec. Since 1978, British Columbia has been in the forefront of the movement for deregulation and believes strongly in the need for increased competition within the telecommunications sector in Canada both on grounds of overall economic efficiency and greater consumer choice.[194] It has consistently supported system interconnection, liberalized terminal attachment and curbs on vertical integration and, more recently, has expressed concern about restrictive satellite communications practices and the need to move quickly towards providing advanced communications and information systems. Unlike the single telephone company which operates within its boundaries, the British Columbia government does not seem to share the same concerns as BC Tel with regard to technological bypass and professes to favour a more or less wide-open approach.[195] Moreover, the British Columbia government continues to be critical of the CRTC as being too distant, unrepresentative, and dominated by central Canadian concerns to provide effective regulation of the province's telecommunications system.[196] Thus, while Ontario, Quebec and British Columbia all fit into the same category of provinces where the major telephone company is federally regulated, they do not always have the same positions and interests.

Policy and Regulation at the Provincial Level

During our research we were struck by the great differences that existed in regulatory approach between federal and provincial governments and across Canada. In part, these differences are a result of variations in the pattern of ownership and of jurisdiction. However, there were also major differences in the regulatory system which is in place in individual provinces and the goals pursued by policy-makers, regulators and the telephone companies. In most provinces, the telephone company has been given an important role to play in provincial economic policy as reflected not only in the pursuit of universality through cross-subsidization and rate averaging but also through the provision of subsidized telecommunications services to certain business users in the resource sector and to rural residential users. Moreover, there are significant differences in the nature of relationships between the regulator and the telco. Thus, while the CRTC has tended to maintain a more distant and critical relationship vis-a-vis federally-regulated telcos, in the provinces the relationships have, until recently, been more intimate and at the same time more passive.[197] By way of concluding our treatment of provincial governments, we will attempt to provide some of the flavour of these differences through a closer examination of developments in Nova Scotia and Saskatchewan.

The telephone company in Nova Scotia is Maritime Telephone and Telegraph, a privately-owned company that provides virtually all of the telecommunications services in the province.[198] MT&T was incorporated in 1910 and subsequently in 1911 bought the Nova Scotia Telephone Company and began the consolidation of other telephone systems throughout Nova Scotia. Regulation of the telephone industry in Nova Scotia began in 1903 as a result of pressure for more supervision of telco rates and initially was lodged with the Cabinet. Several years later, when the Cabinet found itself in the midst of political controversy over its attempt to regulate electrical services like telephone services, the entire regulatory structure was reorganized and an independent commission established to regulate the public utilities. The Public Utilities Board commissioners can serve, subject to good behavior, until age seventy, a factor that has given great stability to PUB policy and the PUB also has the power to set its own budget and raise its own revenue by taxing the public utilities it regulates.[199] Throughout this period, the PUB's role was a relatively passive one, along the lines of telecommunications regulation elsewhere in Canada, even though the Board exercises substantial statutory powers. The Board has unlimited powers to investigate any rating or service problem as it sees fit and its decisions can not be appealed to the provincial Cabinet but can be appealed to the courts in circumstances where the Board is alleged to have acted outside its jurisdiction or statutory authority. In the past, senior telephone company executives would routinely "go up the street" to see the regulatory agency where necessary and could generally expect a sympathethic reception when some regulatory change was required. Until the 1980s, then, the PUB pursued what has been described as a "policy of mutual non-interference" in its relations with government and, it would seem, also with the telephone companies and "there is no evidence that the government has wished to do other than remain outside the regulatory process . . .".[200]

More recently, relations between the PUB, the government and the telco have become more strained. A change in the chairmanship of the Board in 1978, after the outgoing chairman had been in place for about thirty years, marked a shift in Board policy toward a more active and somewhat less accommodating stance toward MT&T. The new chairman has been greatly concerned about the overall integrity of the telephone system and the threat posed by the new technologies and by increased competition upon universality and local service prices. During 1981 and 1982, the government of Nova Scotia undertook to draft and pass a new Telecommunications Act that would have set out objectives for telecommunications policy and regulation in a more competitive environment and also would have given the government a policy directive power. Despite widespread critical acclaim from many parties within and outside Nova Scotia, the successful intervention by the PUB chairman with the Minister of Communications and his emphasis on the dramatic implications the new Act might have for increased local rates led to the government shelving the draft legislation.[201] Nevertheless, the underlying issues that generated this struggle remain – in particular the problem of how the provincial regulatory agency should respond to pressures from without and within for movement to a more competitive environment.

In Saskatchewan, too, pressures for increased competition are also at work and the regulatory system has slowly been changing. Three years after gaining provincial status in 1905, the Saskatchewan government set up a government-owned telephone company within the Department of Railways, Telegraphs and Telephones which combined both the operational and regulatory aspects of telephone service. This government-owned telco quickly moved to buy up many of the existing telephone companies and gradually established a highly popular, province-wide system. In 1947, the CCF government reorganized Saskatchewan Government Telephones to establish a Crown corporation responsible for the operational parts of the system and with the regulatory function separated out and remaining within the Department of Telephones. In 1969, Saskatchewan Government Telephones was renamed Saskatchewan Telecommunications to reflect the growing breadth of the services offered by the telco.[202] Sasktel policy objectives, which are defined in its 1975 Mission Statement rather than the incorporating legislation, are heavily oriented toward economic and social development goals, especially universality of access and service to rural areas. At the same time, the company has always had a strong profit and improvement orientation. This is attested to and legitimized by the fact that the Corporation is required by law to pay the government a dividend of 50 percent of net earnings each year and its commitment to a major modernization of its system is reflected in its programme for the construction of an extensive, 3400 km fibre optic network throughout the province.[203] Indeed, Sasktel policy bears some resemblance to that of some European PTTs in its commitment to system modernization and commercial orientation while at the same time being reluctant to countenance too much increased competition.

Until 1982, there was no statutory regulatory agency responsible for Sasktel and, instead, it was regulated directly by the Saskatchewan government. The Cabinet ultimately gave approval to all rate changes, investment plans and any modifications in corporate objectives and no prior public notice of proposed action by the Cabinet was required or given. Although the regulatory system that resulted was largely closed to direct public involvement, this did not undermine subscriber satisfaction with Sasktel and, indeed, this satisfaction remains high as is suggested by the common proprietary reference to it as "our telephone company". As of 1982, direct Cabinet regulation was replaced by regulation by a new Public Utility Review Commission (PURC). The PURC has jurisdiction only over monopoly services and not over cable rates or competitive services which are thereby effectively deregulated. The PURC can receive direction from the Cabinet but the Progressive Conservative government that established it has also committed itself to not interfering with PURC decision-making unless it acts in ways sharply contradictory to government policy.[204] The establishment of the PURC was a product of the 1982 election and an election promise by the victorious Conservative Party. The evidence would suggest, however, that partisan considerations were not all that important in explaining the final outcome. It is true that the two main parties differed on how they would manage Sasktel, with the former NDP government preferring continued direct government regulation and the Conservatives espousing a more structured relationship between Sasktel and the regulatory authority while at the same time ensuring itself of a final say in the case of policy conflicts through a directive power. Nevertheless, the two parties did not seem to differ much with regard to provincial policy goals and, for instance, there is no evidence that the present government is much more favourably inclined toward increased competition within telecommunications in Saskatchewan than its predecessor NDP government.[205] In the final analysis the policies followed by both Sasktel and the government reflect the unique circumstances in Saskatchewan of a dispersed and highly-rural population, a substantial concern for equity and service, and a continuing and firm commitment to public ownership.

Partisan, Electoral and Public Opinion Considerations

Public decision-makers in Canada often tend to get absorbed in the regulatory, bureaucratic and federal-provincial dimensions of public policy issues and sometimes lose sight of the fact that these activities are set within a broader political context. Governments at both the federal and provincial level are formed by particular political parties which hold their own positions and interests on issues; elections can occasionally be jeopardized, if not won or lost, on particular public policy issues; and public opinion can often quite quickly be mobilized on one side or other of an issue. Telecommunications matters—despite the fact that in the past they have been low-key and even insignificant political concerns—should nevertheless be briefly examined in this context. With regard to the partisan factor, the similarities clearly outweigh the differences among the major political parties at the federal level, although there are some rather predictable variations of emphasis. The federal Liberals as the governing party for so many years have gradually sanctioned the shift from regulated monopoly to a more competitive approach to telecommunications, especially as confirmed by the former Minister of Communications views on the current policy review, but probably would put more emphasis on universality and industrial strategy considerations.[206] The Progressive Conservatives have been even more strongly committed to a competitive approach, as reflected for example in the actions of their Minister of Communications during the short-lived Clark government, and the new federal Conservative government is likely to be considerably more disposed to favour some degree of privatization, substantive regulatory reform, and improved cooperation with provincial governments and regulatory agencies in the telecommunications field.[207] The New Democrats, for their part, have traditionally been suspicious of the move towards increased competition, viewing it as largely a corporate strategem and a threat to local service pricing and universal access.[208] At the provincial level, as well, there has been some evidence of significant partisan influences on telecommunications regulation, although the Saskatchewan and Nova Scotia experiences do show that these have been by no means overwhelming.

The likelihood that telecommunications issues could become a salient electoral issue either at the federal or provincial level is not particularly high. Certainly, this has definitely been the case in the past and, only under special circumstances and conditions, is it possible that this might change. At the federal level, matters of telecommunications regulation are not the stuff of which governments are made or broken and, in any case, the limited territorial scope of federal jurisdiction precludes their emergence as effective national or local concerns as in the United States. This is not to say, however, that federal governments of whatever stripe might not have to face these issues in some form at election time but only that the generally depoliticized character of telecommunications regulation, as seemingly a technical issue rather than a popular issue, is likely to continue.[209] At the provincial level, however, the potential of telecommunications policy and regulation as an electoral issue is perhaps greater. Especially in Saskatchewan where the provincial government owns the telephone company and is closely identified with it in the public mind, high rate increases or local-measured-service could become an electoral issue. Likewise, in a province like Nova Scotia where the traditional values of universal service and stable local rates are strong, any sudden jolt in telephone rates as a result of increased competition could have a partial influence on electoral outcomes in a way similar to the impact of sharply higher electricity rates which helped to defeat the provincial government in 1978.[210]

With regard to public opinion more generally, however, it is certain that telecommunications will assume a higher profile than in the past if only because of the magnitude of the changes that might take place and the central character that communications has in the emerging information society. Up to now, the general public has not really taken much notice of telecommunications services and how they are provided, so long as prices were reasonably low, access was more or less universal, and service quality was good. Should any of these criteria change, the pattern of public opinion about telecommunications matters could also change, opening up the possibility of greater politicization and room for a wider range of interest group representation.[211] Politicization of telecommunications issues could take the form of impatience with the recent movement towards increased competition and sentiment in favour of a return to the good old days when the telephone company provided POTS and little more. What is also likely is an expansion of interest groups attempting to represent public opinion on telecommunications matters, especially a greater differentiation among residential users and a general sharpening of positions and interests. As well, the ideological underpinnings of telecommunications regulation, and particularly the monopoly vs. competition issue, are likely to become increasingly evident in the years to come.[212] At the same time, the complex jurisdictional and regulatory situation and the particular mix of public and private sector interests involved will continue to impede the mobilization of public concern by making it difficult to focus these views on the appropriate public decision-making body.

Issues and Stakes: Analysing the Emerging Policy Agenda for Telecommunications Policy and Regulation

Early on in this paper, we identified five issues – or more accurately clusters of issues – which are likely to shape the future of telecommunications policy and regulation in Canada over the next five to ten years. The selection and definition of these issues is necessarily somewhat arbitrary but they all conform to varying degrees with the very useful "selection-rule" which Marc Porat has set out. On each issue, much is at stake for many of the major players which we have profiled in the previous section. The precise configuration of players and the key elements which bear on each issue vary considerably. The threat of bypass and the erosion of traditional industry boundaries, the changing balance among monopoly, competition and regulation, problems of costing, pricing and the cross-subsidization issue, jurisdictional and regulatory reform, and the issue of reconciling increased competition to industrial policy in the telecommunications sector will each shape and influence the future of telecommunications policy and regulation in Canada. This section of the paper will examine each of the first four issues, treating the configuration of players and forces which is arising and delineating the public policy implications of each issue.

Issue 1: Bypass and Boundaries

In Canada as elsewhere in the world, dramatic changes are taking place in the telecommunications sector and the broader "information business" and there is considerable confusion and uncertainty as to where it is all leading. The sources and manifestations of change are relatively easily identified but the precise pattern of evolution and its implications are not always so readily apparent. First and foremost, we have already noted that close observers are virtually unanimous in presenting rapid technological change – the "big wheel" which drives all the "little wheels" – as the controlling factor in forcing change within the telecommunications sector and the "information business". What such observers find particularly striking is the remarkable rapidity of technological innovation and its application to telecommunications over the past two decades, the proliferation of new products and services which are becoming available as a result of the elaboration and/or convergence of communications and information technologies, and the seemingly ready demand for such products and services in an affluent post-industrial society. However, the "big wheel" of technology is also raising serious concern about the threat of "bypass" of the traditional telecommunications system, built and operated primarily by the major telephone companies in Canada, and about erosion of the "boundaries" which have in the past provided reasonably firm separation among companies and markets within the telecommunications sector and between it and other elements of what we have described as the "information business".[213]

There is at present much debate within the telecommunications sector and among its observers about these two concepts – "bypass" and "boundaries" – and what they really mean. In its most neutral and common sense meaning, the "bypass" phenomenon relates to the new and improved technologies – from cable and satellites to fibre optics and digitalization – which provide alternative modes of providing the increasing range of telecommunications goods and services which business and residential users are demanding. However, "bypass" often has quite different meanings for many of the major players in the future of telecommunications policy and regulation. The telcos, particularly Bell Canada and BC Tel, are not really opposed to "bypass" as a technological phenomenon, since they themselves make use of many of these bypass technologies. They do, however, draw the distinction between "economic" and "uneconomic" forms of bypass, with the latter referring to situations where competitors utilize technologies or provide goods and services at prices below the artificially high prices at which the telcos are forced by regulation or government policy to provide their product.[214] A competitor like CNCP Telecommunications, whose very existence is based upon this concept, views "bypass" as merely the technological dimension of competition and a normal part of the "offer-improvement" cycle which should operate in competitive market systems. In any case, it forcefully rejects the notion that its proposed long distance service constitutes "bypass" since it fully intends to use its existing common carrier network as well as that of the telephone companies.[215] Cable distribution systems, local area computer networks, and potential direct satellite services, on the other hand, are yet another expression of "bypass" in that they represent potential alternative technologies whose use by high-volume customers could undermine the viability and revenues of the telephone network. In Canada, as well, "bypass" also takes the form of foreign service providers, largely American, operating in a very different regulatory and cost environment who might begin to carry increasing volumes of Canada-US and even Canada-Canada traffic using their own facilities.[216] For purposes of analysis, then, it is important to separate off "bypass" which is primarily a phenomenon of alternative technologies for the delivery of telecommunications goods and services from increased competition among established common carriers which relates more to the erosion of traditional industry boundaries.

At the same time, however, the continuing validity and relevance of the concept of "boundaries" is also a subject of controversy. On the empirical level, it is equally the case that long-established boundaries within the telecommunications sector – local service, long distance, private lines, and data communications among others – and between it and other elements of the "information business" have been in a process of erosion for some time. The integration of voice, image and data communications as well as the convergence of computers and communications are destroying any real technological separation at the same time that pressures for increased competition coming both from telecommunications providers and users make the traditional industry boundaries seem increasingly meaningless.[217] The telephone companies – operating under either federal or provincial jurisdiction and, depending upon your point of view, either shackled or shielded by regulation – find themselves increasingly in competition not only with more specialized common carriers and the new interconnect industry but also with the cable and computer industries as potential providers of alternative technologies, not to mention with recent entrants who seek to provide a variety of new and enhanced communications and information services.[218] This erosion of industry boundaries is manifest in several ways including the recent relaxation of certain regulatory restrictions on competition, the emergence of increasing numbers of multi-product firms operating in different markets as well as the increasing number of situations where the same firm operates in both regulated and competitive markets and, finally, the greater substitutability of products and services offered by different firms and industries. Unlike the case with regard to "bypass", there is not much dispute about the fact that industry boundaries are eroding but there is much more controversy over what, if anything, can be done about it.

While the threat of bypass and the erosion of boundaries as this issue affects the telecommunications sector and the broader "information business" can be painted with broad strokes, it is considerably more difficult to fill in all the fine detail necessary to arrive at a reasonably good understanding of the future of telecommunications policy and regulation in Canada. One approach suggested by Anthony Oettinger is to examine the major "arenas" which have developed within the "information business", how the rules of the game are likely to change within those arenas, and the configuration of forces which are at work in each arena. The five major "arenas" which can be identified are the following: local telephone service, long-haul transmission, telecommunications equipment supply, "enhanced" communications services, and information services.[219] Within each of these "arenas", the technological phenomenon of "bypass" and the erosion of industry "boundaries" is present to different extents and one sees complex and often confusing forces at work which do not allow easy analysis or confident prediction.

Local telephone service has of course been viewed as the classic case of "natural monopoly" where a single operator should be designated to provide the service within a given territory but subjected to price and other regulatory control in the public interest. Given the extensive and costly infrastructure of poles and wire and switching equipment and the need to provide an integrated system, competition as the principle underlying industry structure has seemed to make no economic or political sense. To a substantial extent, that original rationale still holds and it is unlikely that "bypass" or any other factor will quickly break down the local service monopoly held by Bell Canada, BC Tel and the other major telephone companies. However, there are a number of technological and other developments which continue to nibble away at those "natural monopoly" conditions. Reliance on the local switched network as the primary communications link remains strong but not exclusive. The extension of cable distribution systems into interactive applications, advances in computer design such as local area networks, the emergence of cellular radio as particularly suited to mobile communications, and even perhaps a local direct satellite capability are ways of bypassing the local switched network.[220] In Canada as elsewhere, each of these technological alternatives poses a potential bypass threat to local telephone services but the threat is neither acute in the short-run nor, significantly, is it directed at the heartland of the existing telephone industry.[221] Secondly, the major telephone companies in particular are already demonstrating their ability to counter bypass challenges either by preemptive or reactive strategies. For example, in the case of cellular radio, the telephone companies across the country are being guaranteed one of the two licenses within each of the 23 competitive markets which the Department of Communications has recently created while the long-awaited head-to-head competition between the telephone companies and the computer industry is becoming evident with regard to the provision of local area networks for business purposes.[222] Thirdly, changes in local service pricing are likely to be a significant issue in the coming years and will be reflective of a certain contention and disarray within the regulated monopoly situation. It should be noted, however, that any changes in this regard will probably result from reductions in the apparent cross-subsidization of local service by long-distance service rather than from direct competition between local service and other technological alternatives like cable or satellites.[223] Finally, the provision of local telephone service will become more complicated as the working definition of what constitutes basic service changes to reflect the new technological possibilities and as pressure mounts to absorb expanded telecommunications services either within an integrated communications network or some hybrid model.[224] For the forseeable future, then, local service monopolies in the provision of basic telephone service will likely remain more or less intact.

In the long-haul transmission "arena", which includes not only long-distance telephone service but also satellite transmission and even fibre optic transmission, the situation is rather different. With the advent of satellites and other technological advances, long distance service has become largely distance-insensitive and channel availability has increased greatly to the point where there is little difficulty in meeting the demand for long-distance telephone service. In fact, there is a surplus of satellite transmission capacity which can be used as well by specialized telecommunications common carriers, broadcasters, cable companies and, conceivably, by other commercial interests.[225] In these circumstances, "bypass" and increased competition in long-haul transmission is not merely a threat but a reality and industry boundaries are already changing. The long distance and private line business which Telecom Canada and member companies provided over the years has, both before and after the CRTC interconnection decision, come under increasing attack from CNCP Telecommunications which offers a competitive range of telex, data transmission, Canada-US discounts, and now proposes to enter into the cross-Canada long distance market. Likewise, Telesat Canada, which is also a member of the Telecom Canada consortium, is presently an integral part of the network but, if its legal status and the economics of satellite transmission were to change somewhat, it could conceivably become a monopoly "bypass" alternative or, what is more likely, part of a competitive satellite communications industry providing its own long-haul transmission services directly or indirectly to customers.[226] Moreover, there is no apparent reason, technologically or legally, why any type of Canadian traffic – Canada-US, Canada-overseas, and even within Canada itself – cannot be routed by resellers or discounters through American long-haul transmission facilities and this is in fact already happening to some extent. The potential for "bypass" in the long-haul transmission arena, then, is substantial, precisely because it is believed that there has been significant cross-subsidization from long-distance to local service. As well, large business interests and other heavy users of telecommunications services complain loudly about high long-distance and satellite communications costs and are attracted to "bypass" by the significant savings which might be realized. And finally, the experience of a decade or more in the United States where companies like MCI and Sprint have provided selected long distance service in competition with AT&T and where a number of companies compete in providing satellite transmission services is a further spur to "bypass" and the breakdown of barriers to entry into monopoly markets.[227] Thus, the long-haul transmission "arena" gives every indication of sustaining even more bypass and becoming more competitive than it already is.

Telecommunications equipment manufacturing, both as it relates to system hardware and terminal equipment, constitutes yet a third "arena" and one where the issue is not bypass but boundaries. As well, this is an area where the advance and convergence of technologies means that precise distinctions between what was traditionally regarded as telecommunications equipment manufacturing and computer hardware manufacturing, business equipment manufacturing and even consumer products are breaking down. Vertical integration between the two largest telephone companies and their suppliers remains a dominant feature of the industry and one which governments have sanctioned and even encouraged in recent years. Its overall impact, however, has been diluted somewhat by the provincially-regulated telephone companies, especially in the prairie provinces, which purchase system hardware from a wider variety of suppliers, by the aggressive role played by middle-range companies like Mitel, and by increasing competition from outside the telecommunications equipment industry itself.[228] Likewise, liberalization of terminal attachment restrictions, which originally gave the telephone companies virtually a monopoly over the devices which Canadians could attach to the telephone system, has also been sanctioned and encouraged by governments. Within this arena, however, there still remain subtle restrictions on competition growing not so much from monopoly as from regulation. Provincial governments and regulators often establish restrictions which limit the degree to which the whole Canadian market is accessible to domestic manufacturers.[229] The establishment of technical standards for the increasing range of equipment and devices being produced is another way in which restrictions on competition can be imposed. And finally, the foreign sales offensive within the industry means that firms most often place more emphasis on meeting the requirements of export markets rather than focussing primarily on the domestic market.[230] What has emerged within the telecommunications equipment manufacturing industry is a mix of monopoly and competitive firms operating within a very dynamic marketplace.

A fourth "arena" within which telecommunications companies are operating increasingly is the expanding market for communications services. A whole range of communications services – beyond basic local and long-distance service – has been emerging over the past decade or so and will continue to grow in the years to come. Such communications services include paging and mobile communications, data transmission, electronic messaging, monitoring and billing services, and the like. In virtually all cases, the pattern which has developed is that the major telephone companies and often other telecommunications carriers like CNCP compete with each other and/or outside actors in the provision of such services. Private line services have been offered on a competitive basis by TCTS and CNCP for over 20 years while interconnect services are offered by both companies through separate subsidiaries which also compete with a large number of other firms within that emergent industry.[231] In this area, as well, the major telecommunications companies are also drawn into competition with other actors within the broader "information business". CNCP operates its recent electronic messaging service in cooperation with Canada Post and this service stands in direct competition with similar services operated by TCTS. Likewise, Bell Canada and the other telephone companies may well in future offer a range of non-programming services like information retrieval and remote sensing in competition with similar services already operated by some cable companies.[232] While several of these communications services are subject to government regulation, the movement is clearly towards a more competitive environment where the telephone companies will be challenged by other actors within the "information business".

Finally, there is the information services "arena" which comprises a wide range of content services—videotext, data bases, directories, software applications, and teleshopping, among others—which might be supplied to subscribers by the telephone companies, cable companies, or by other means. For the telephone companies, the provision of information services raises important questions about whether any such venture might not push them beyond their common carrier mandate and into areas of the information business where they may or may not wish to go.[233] For the cable companies, however, the situation is quite different since they have not in the past been treated as common carriers and so-called "non-programming services" are viewed as natural extensions of cable distribution systems and eagerly sought after. The experience to date with videotext would seem to provide a case in point. The telephone companies, along with cable operators and broadcasters, have all explored the possibilities of the technology but it is the cable companies which are beginning to spearhead the introduction of this service.[234] On the other hand, the telephone companies might well be tempted to expand more into the enhanced services in the computer communications field in competition with existing computer service bureaus, an area which until now has been off-limits because of the principle of carriage/content separation.[235] In short, one must expect the telephone companies to move selectively and carefully into certain areas of the information services "arena" but not into others.

Important questions emerge from this brief discussion of the impact of technological change in the telecommunications sector and the broader "information business" in Canada. Perhaps most important of all, how serious is the "bypass" phenomenon in Canada, both as a threat and a reality, at present and over the next five to ten years? On this question, our research and interviews lead us to believe that the threat of "bypass" in Canada is serious, especially with regard to long-haul transmission, but easily overstated especially in relation to the US experience. Virtually all recent accounts suggest that "bypass" in the United States is no longer a threat but a reality and that that country is presently undergoing a "bypass" explosion.[236] As is usually the case, Canada will definitely follow the same general trend, but on a more delayed basis, subject to considerable variation across the country, and within a tighter framework of policy and regulation. First of all, "bypass", as a reality rather than a threat, is much more likely to take place in Bell Canada or BC Tel territory, and thus pose a challenge to federal policy and regulation, than it is to occur in Saskatchewan or Nova Scotia. It does seem true that long-haul transmission rates have been considerably higher than comparable rates in the United States and that the "80/20 rule" whereby a telephone company typically gains 80 percent of such business from roughly 20 percent of its business and residential customers does operate with rather surprising consistency across the country. However, the incentive to move towards "bypass", even for large institutional and business users, is diluted but by no means eliminated by the fact that so many large institutional users are public sector organizations which, despite their own desires, must directly or indirectly serve provincial or federal government purposes. As well, many business customers – with the possible exception of the banks or large multinational companies – are not yet as well organized to pursue bypass on their own behalf as their US counterparts. Likewise, residential customers will, for at least the next ten years, have to rely primarily on the telephone companies themselves and/or "the Competition" to make use of bypass technologies, wherever economically and socially appropriate, if they are themselves to realize the benefits of technological change.[237]

Secondly, the capacity and disposition on the part of policy-makers and regulators in Canada at both the federal and provincial levels to attempt to control bypass is probably greater than in the United States. Federal control over the use of the radio frequency spectrum and satellite transmission as well as provincial ownership of the telephone systems in the prairie provinces gives governments additional legal authority to prevent bypass beyond the normal regulatory powers exercised by federal and provincial regulatory bodies, if those governments wish to use their powers. Moreover, policy-makers and regulators at both levels, not to mention the telephone companies themselves and at least some of "the Competition", have a substantial investment in terms of the existing network and the pattern of cross-subsidization which it sustains and, thus, must regard bypass by alternative technologies or through the use of US facilities with considerable suspicion and hostilities. The capacity to seriously restrict, if not to fully control bypass, is there, especially in provinces like Saskatchewan but also elsewhere and certainly at the federal level. However, given the movement towards increased competition and mindful for example of the satellite dish licensing episode, one may still wonder whether there is likely to be the "political will" over the longer term to successfully control bypass.[238]

Finally, it may well be that the real challenge posed by bypass lies in the disruption and instability which it foreshadows for the characteristic ways whereby the telecommunications system in Canada has traditionally operated.[239] Federal and provincial governments, as well as individual governments like Nova Scotia, Ontario or Saskatchewan, may be drawn in different directions according to their interests in the bypass issue. Policy-makers at either level attracted by the industrial and other benefits of supporting bypass may not have the same concerns as regulators seeking to defend the benefits of the existing system. Even more important, a consortium like Telecom Canada where member companies face the threat of "bypass" to different degrees and are subject to different regulatory and political constraints could find it difficult within their present organizational structure to operate in an increasingly competitive environment. Thus, the threat as well as the reality of "bypass" will be serious and the trendline in Canada broadly similar to that of the United States but for a variety of reasons, one should guard against any simple extrapolation of the American experience in the quite different Canadian context.

The second important question which should be asked relates to "boundaries". Given technological change and increasing competition evident within the telecommunications sector and the broader "information business", can and should effective boundaries between industries and markets be re-established?

First of all, we should be clear about what purpose "boundaries" between industries and markets really serve. "Boundaries" – whether between the local long distance and telephone network, basic and enhanced services, or telecommunications companies as common carriers vis-a-vis cable distribution systems as extensions of broadcasting vis-a-vis computer communications which is largely unregulated – are primarily important as regulatory and jurisdictional constructs necessary to separate one activity from another for purposes of control rather than as firm lines of demarcation between companies providing different goods and services.[240] Technology and competition as forces for change are clearly eroding traditional industry and market boundaries within the telecommunications sector and the broader "information business" and, at the same time, are undermining the very concept of "boundaries". Governments within the federal system can better demarcate the respective roles and responsibilities when identifiable industry and market boundaries are in place. Regulators strongly prefer effective and stable industry and market boundaries in order to apply regulatory instruments uniformly and equitably and this becomes increasingly difficult when firms engage simultaneously in regulated and non-regulated activities or when regulated firms come into competition with unregulated firms. Until recently, the major telecommunications providers found it desirable and comfortable to work within fairly firm and effective industry and market boundaries. All that has now changed under the impact of technology and competition. However much it may still be the case in a few parts of the country and among some user groups, the old saw that "a telco is a telco is a telco" probably has to be rewritten as "a telco is a plain-old-telephone service is a product retailer is an enhanced service provider" – and with serious consequences for policy makers, regulators and the telecommunications sector alike.[241]

As to whether or not effective "boundaries" can be reestablished within the telecommunications sector and the "information business", the answer is probably no. It is difficult to see how and along what lines such industry and market boundaries could be reestablished. For example, one might think of new industry and market boundaries based upon a functional separation between context and carriage, a theme articulated by the Clyne Commission some years ago and espoused in the "mapping" exercise which we have used to introduce the major players. However, given the integration of voice, image and data communications and the convergence of computers and communications, such a solution would seem to go against the evolving pattern of technological development and not provide a realistic way of reestablishing boundaries.[242] As well, one might explore the reestablishment of industry and market boundaries more in accord with some satisfactory realignment of federal and provincial jurisdiction or powers. A realignment of roles and responsibilities whereby the federal government would exercise supervision over the interprovincial and international aspects of communications and the provincial government would look after matters of an intraprovincial nature could provide a basis for reestablishing industry and market boundaries. Once again, however, such a solution seems highly improbable given the stances of federal and provincial governments and might well be undesirable because it might lead to two tier regulation and more politicized inter-governmental relations.[243] Yet another solution whereby effective boundaries might be reestablished would be not only to retain but even expand the regulatory powers of the state, through action by either the federal and/or provincial governments, to cover all relevant players within the telecommunications sector and the "information business". Once again, however, this would seem to be contrary to the movement towards deregulation and increased competition. Thus, for the foreseeable future, the erosion of industry and market boundaries is likely to continue unabated and, even if it were possible and desirable, it seems clear that there are no easy solutions to the problem of "putting Humpty-Dumpty back together again".

Issue 2: The Changing Balance Among Monopoly, Competition and Regulation

If bypass is a real threat – whether immediately or over the longer term – and if boundaries are eroding between markets and industries, what will be the new balance among monopoly, competition and regulation in telecommunications and in the broader "information business?" Continuing elements of monopoly – jealously protected by the relevant industry actors and sanctioned by governments – are clearly apparent in the control exercised by Bell Canada, BC Tel and the provincially-regulated telephone companies over local service within their territory, the virtual monopoly which Telecom Canada (including Telesat) holds over long-distance service, and the important elements of vertical integration between the two largest telephone companies and their suppliers in the telecommunications equipment industry. Nevertheless, the forces of competition are also becoming increasingly evident in large part because of a set of decisions taken by the federal regulatory authority. Within the telecommunications sector itself, CNCP

Telecommunications has been allowed to emerge as a duopoly challenger to the telephone companies in certain areas of the telecommunications market while more broadly-based competition has developed between regulated and competitive elements within the "information business" including the computer industry, the cable operators, and the interconnect industry, among others. In these circumstances, there is an ongoing reassessment, at both a theoretical and practical level, of monopoly, competition and the role of regulation in Canadian telecommunications and how a new balance among these elements might be struck.

The case for tolerating a substantial degree of monopoly within Canadian telecommunications is more historical and cultural than economic and cannot easily be extended into the broader "information business". The economic rationale for accepting monopoly practices hinges upon the existence of economies of scale, economics of scope and economics of technological change. In each of these respects, it had previously been assumed that duplication in the provision of basic telephone services, cost advantages which accrue to multiple output production, and greater incentives for innovation all were present to such a degree that a condition of "natural monopoly" was said to exist with regard to the provision of telecommunications goods and services. Recent Canadian studies suggest, however, that if a "natural monopoly" was formerly characteristic of the telecommunications industry, it is no longer clear that such a condition exists today. Nevertheless, there still remain other non-economic justifications for monopoly practices which focus more nebulously on historical and cultural arguments. It is well known that reliance upon government intervention and monopoly practices in transportation and communications has been at the core of Canadian economic development and that Canadians have traditionally been willing to accept a greater degree of monopoly control within their economy and society than, by way of comparison, has been the case with Americans.[245] Nevertheless, although Canadians may have been more favourably disposed to an interventionist state, monopoly has only been tolerated in the context of some form of either public ownership and/or direct regulation as a means of controlling against the potential abuses of monopoly power.

The argument for promoting as great a degree of competition as possible in the provision of goods and services can be made on both practical as well as ideological grounds. The central rationale for competition is that it will increase efficiency in the marketplace, allow for greater choice on the part of customers or subscribers and, especially in a period of rapid change, provide a much more flexible institution for establishing the proper allocation of investment capital. At the level of ideological argumentation, many proponents of competition virtually assume that it is by definition in the "public interest". Others would go so far as to claim that, even where there is perceivable market failure, the standard circumstance under which monopoly has been traditionally justified, that imperfect competition is preferable to the "political failure" that will result from regulation which entrenches and protects established interests within a market at the expense of the "public interest".[246] As outlined previously, increased competition within the telecommunications sector and the emerging information business is becoming a fact of life. This competition is the product both of technological and attitudinal change among Canadians which has made it more acceptable and desirable. However, it is worth remembering that it has been CRTC decisions which have shown the way toward increased competition and that this has been done overwhelmingly for practical rather than ideological reasons. Furthermore, whereas in the United States the deregulation movement in telecommunications has reflected a "reawakening of competition," in Canada the telecommunications sector has never really been competitive. While increased competition reflects a widely espoused value in Canada at the present time, the practical case for it in the telecommunications sector must still be that competition should be preferred only in the absence of evidence and reasoned argument favourable to the continuation of a regulated monopoly.

Regulation is generally viewed as a necessary complement to the toleration of monopoly but quite antithetical to the promotion of competition. Rationales for regulation are numerous and varied and take both economic and political forms.[247] The most prominent economic rationale for regulation is one variant or another of the argument about "market failure". In the case most relevant to our concern, it is argued that "natural monopoly" conditions exist where a restricted market structure is likely to evolve and be sustained such that it requires government regulation to prevent the monopolist from reaping excessive profits or skimping on the delivery of quality service. Apart from "natural monopoly", other economic explanations for regulation focus on such factors as the presence of technical constraints in the exploitation of a technology or the existence of a common-property resource, both of which require some degree of central control for the purpose of preventing disorder. Political rationales for regulation are broader and tend to focus on some conception of the "public interest", however difficult in practice this term might be to define. From this perspective, there are several possible purposes for regulation, whether it be to protect against the excesses of natural monopoly conditions and other forms of market failure, or perhaps to effect an implicit redistribution of income from one group in society or another, or to promote some desirable social or national purpose. Utilizing such typical devices as entry controls, price or rate of return limits, and specified objectives, regulation becomes a policy instrument to legitimate and civilize monopoly and to control the excesses of too much or too little competition.

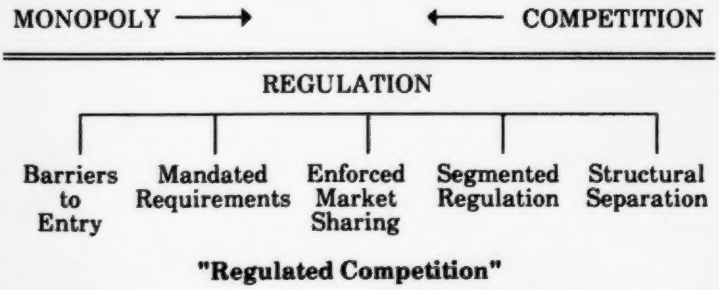
The history of telecommunications in Canada suggests that, while political arguments were more important in establishing and maintaining the telephone company monopoly in Canada, economic arguments have become more prominent in recent years in promoting increased competition.[248] The origins of the Bell Canada monopoly derives more from the desires of franchise regulators to improve and extend service than from the inexorable development of natural monopoly conditions. In Western Canada the unwillingness of Bell to extend service into rural areas at an acceptable rate contributed to the growth of government-owned monopolies in the prairie provinces.[249] In the process of regulating the telephone monopolies, a host of social policies such as universality of service and rate averaging between high and low density traffic areas became embedded in a complicated rate structure through the use of cross-subsidization practices. Arguments related to national sovereignty and economic nationalism along with a general satisfaction with the quality of service have helped over the years to shield the territorially-organized telephone monopoly from criticism. However, over the past decade, the economic justifications for monopoly have received much greater attention. In particular, the extent to which natural monopoly arguments continue to be relevant and the relationship between rates and costs have dominated the discussion. One widely-cited study relating to Bell Canada was unable to establish either the existence or non-existence of a natural monopoly and found no clear evidence one way or the other on the presence of scale economies.[250] This same study found that Bell rates could be improved in terms of their efficiency and equity by an increase in local service rates and a decrease in long distance rates.[251]

The recent interest in the possibility of increased competition derives from a number of factors – technological, ideological, and economic – as well as from a changing mix of private and public sector views and interests within the telecommunications sector which are forcing policy-makers and regulators to reassess long-standing forms of regulation. Technological change proceeds apace and often largely exogenous to the control of regulatory authorities and this has increased both the range of potential telecommunications goods and services to be regulated and the temptation to use more intrusive forms of regulation.[252] In the face of persistent pressures coming not only from "the Competition" but also in some cases from the telephone companies themselves and from user communities, there has been a shift away from simple price and rate of return regulation to forms of market sharing, segmented regulation and structural separation which we will treat in more detail shortly. At the same time, there has been a substantial broadening of the regulatory and political processes to allow for the participation of a much wider range of views and interests and this has led to a more conflictual and less stable situation. The subtle blend of arguments based upon ideological commitment and plain self-interest has become increasingly prominent within the regulatory and political processes. And not only are there new and growing conflicts among private sector interests but governments have been brought more and more into the fray where, in the past, jurisdictional and regulatory problems were ignored or left to the private sector for ongoing resolution. The pressure for increased competition, then, both theoretical and practical, has created a state of disequilibrium within Canadian telecommunications where an ongoing reassessment of monopoly, competition and the role of regulation is taking place.

The present situation with regard to monopoly, competition and the role of regulation in Canadian telecommunications is complex. From conditions of regulated monopoly which have been in place at both the federal and provincial levels since early in this century, Canadian telecommunications has moved during the past twenty years or so into the shady realm of "regulated competition" where it exists at the present time. As well, many participants and observers firmly believe that, because of the inherent contradictions which operate in the present situation of "regulated competition", Canadian telecommunications must move quickly and deliberately to more extensive and purer forms of competition. "Regulated competition" is indeed a contradictory state where a wider but still limited range of players are allowed to compete in certain markets but not in others and the policy-maker and regulator rather than the market assumes the role of arbiter, choosing whether or not to set prices and rates of return and/or conditions of competition within particular markets. Once the policy-maker and regulator take on this role, they are driven by the logic of the situation and their own self-interest into increasingly intrusive forms of regulation. As more and more players and more and more services appear on the scene, the policy-maker and regulator becomes the decisive factor in determining who will get what and how and when new services will be introduced. Thus, "regulated competition" is in many ways the worst of both worlds but, as one observer of the US experience where deregulation has moved considerably further than in Canada has concluded "regulated competition" is likely to be with us for some time to come and we should at least become more aware of "the dark complexities of combinations of market administrative and political processes in the real economy".[253]

The central problem facing public decision-makers, then, is neither monopoly nor competition per se but the role to be played by regulation in separating what should be monopoly elements from what can be competitive elements within the telecommunications sector and the broader "information business". Up to now, this has been done in rather rough and ready fashion through regulation. As a governing instrument, regulation allows for a number of quite different forms that can be arranged upon a continuum of more versus less control as exercised by the policy-maker or regulator. Figure 5 presents just such a schema whereby the changing balance between monopoly, competition and different regulatory forms can be examined. Recent CRTC and provincial regulatory decisions which reflect each of these different regulatory forms will be used to highlight the major points at issue.

Figure 5
A Continuum of Forms of Regulation



Barriers to entry have traditionally been the main way in which the CRTC and provincial regulatory authorities have separated monopoly from competitive markets within the telecommunications sector. The dropping of barriers to entry has been central in two of the CRTC's most important telecommunications decisions, specifically the system interconnection case and the terminal attachment decisions, and provincial regulatory authorities across the country have in many instances been faced with similar cases. In the system interconnection case, CNCP Telecommunications applied for and received the right to interconnect its microwave network to Bell Canada's and later BC Tel's public switched network for purposes of providing private line services. The CRTC granted the CNCP application, backed as it was by some forty submissions from the user communities and supported by the governments of Ontario and British Columbia, while rejecting arguments and evidence from Bell Canada, BC Tel and the remaining provincial telcos and governments as to its allegedly deleterious effects on the integrity of the network and the financial position of the telephone companies.[254] In the terminal attachment decisions, the CRTC responded primarily to institutional and business users supported by the Director of Investigation and the British Columbia and Ontario governments in allowing subscriber ownership of extension phones, then ownership of the main set and, most recently, the "unbundling" of access from equipment rental rates. It rejected the arguments presented by Bell Canada and BC Tel that its decisions would hurt the equipment manufacturing industry and by some public interest groups that liberalization would jeopardize low local service rates.[255] And, in a recent decision which might set a precedent for CNCP's entrance into the long-distance market, the CRTC has allowed the radio common carriers to interconnect with the federally-regulated telephone systems for the provision of local and long distance service to their customers.[256] Provincial regulatory bodies, however, have not generally been as willing to drop barriers to entry in terms of system interconnection and/or terminal attachment. In provinces like Alberta, Saskatchewan or Nova Scotia, efforts by CNCP Telecommunications to gain interconnection directly through the telephone company and/or by appealing to the provincial regulatory authority have been stymied. With regard to terminal attachment, Alberta, Quebec and certain other provinces have granted liberalized terminal attachment only haltingly.[257] And in the case of New Brunswick, both issues are now being considered simultaneously by the provincial regulatory body. Barriers to entry like interconnection and terminal attachment procedures—and there are still other barriers such as microwave, satellite or cable licencing requirements among others—are long-standing regulatory mechanisms which are used to preserve and protect monopoly practices. Either by maintaining or relaxing them, the relevant policy-making and regulatory authority can most dramatically affect the balance of monopoly and competition within the telecommunications sector.[258]

Mandated requirements to serve particular social or national objectives is a second type of regulatory instrument which has become an integral part of telecommunications policy and regulation at the federal and provincial level. Often more by tradition than design, a goal such as universal service, inter-regional revenue sharing or Telesat's role as a "carriers' carrier" comes to be accepted as a mandated requirement for firms operating within a market or industry. In some cases, these requirements are imposed by government or the regulator while in others they are assumed freely and collectively by all or many industry participants but, whatever the case, their continuation often serves as an impediment to increased competition. At the federal level, the 1981 CRTC decision on TCTS rates and Telesat practices dealt very much with mandated requirements. For the first time, the CRTC reviewed the operation of TCTS and, in terms of "fair and reasonable" rates, found that the Revenue Settlement Plan should be renegotiated to include certain intra-company and adjacent member revenues and also recommended that Telesat Canada make provision for the sale of partial channels at a single low rate and deal directly with all customers and not only through approved telecommunications carriers. In each instance, the CRTC ran headlong into mandated requirements which it sought to change, unsuccessfully as it turned out because Sasktel as one member of TCTS refused flatly to renegotiate the RSP and the federal Cabinet simply overruled the Telesat recommendations.[259] At the provincial level, as well, mandated requirements often take the form of obligations to provide universal service which are set out by statute, imposed by the regulatory body or assumed by the telephone companies themselves and, then, used as a rationale for higher average rates and the exclusion of competition. Social or national objectives which come to be taken as mandated requirements are subtle but pervasive regulatory instruments which initially serve distributive or redistributive purposes but later can be used to powerfully sustain the status quo.[260] Movement towards increased competition usually challenges these mandated requirements and necessitates either their abandonment or the adoption of other means to achieve the same goal.

Enforced market sharing is a third regulatory instrument whereby a balance between monopoly and competition can be struck. The basic idea is that, through approved measures such as price differentials or even explicit market share allocation, the regulator allows some firms to price their services at a lower rate or promote their service differently than other firms. By so doing, the regulator attempts to even out the competitive struggle by handicapping some competitors at the expense of others and thus to establish a desired pattern of competition rather than allowing market forces to operate freely. In different forms, enforced market sharing has become a prominent feature of Canadian telecommunications policy and regulation. The CRTC has implicitly adopted such a regulatory mechanism for certain private line voice services provided competitively by CNCP Telecommunications and Bell Canada. In 1982, the CRTC rejected a CNCP application for fixed-term, bulk rates as a way of competing with Bell Canada but did indicate that it would be prepared to consider an application for a price differential to reflect what the market perceived to be "less valuable" CNCP services and, in 1983, the Commission gave approval to 10 percent and 5 percent differentials for certain interconnected and bulk services.[261] In a rather different way, the Department of Communications has also adopted a form of enforced market sharing in cellular mobile radio by sanctioning duopolistic competition and now policing its introduction so that one competitor cannot get a head start on the other.[262] Provincial governments and regulators have so far been less willing to get into the area of market sharing as a regulatory mechanism prefering instead to make clearer distinctions between regulated and unregulated markets. And it should be noted, as well, that CNCP's present application for entry into the long-distance switched market is premissed upon a form of market sharing whereby it would be able to offer service at a 10 percent – 20 percent price differential, although the CRTC of course has not yet accepted that approach. Enforced market sharing accepts the validity of increased competition – but not open competition – in the provision of telecommunications goods and services and attempts to create and maintain the conditions within which a proper degree of competition can take place. At the same time, it also implies the continued role of the regulator in monitoring and adjusting that degree of competition and keeping out unwanted entrants and necessarily places the regulated firms in a highly politicized relationship vis-a-vis the regulator.[263]

Segmented regulation represents a fourth regulatory instrument for striking the balance between monopoly and competition in the telecommunications sector. The idea here is that one service provider such as the telephone company can be subject to regulatory control within a particular market while other providers like cable or computer companies may offer a similar service but are unregulated. Continued regulation of one service provider is justified because of its ability to support that service with revenues generated by other services or its dominant "market power". Such a regulatory mechanism has been used in the CRTC's recent "enhanced services" decision.[264] In that case, the Commission established a definition of what constitutes an "enhanced service" vis-a-vis a "basic service" and then proceeded to allow the marketing and sale of "enhanced services" by any company on an unregulated basis. However, federally-regulated telecommunications carriers providing "enhanced services" would continue to be regulated on the "basic" transmission services involved when either they themselves or other companies seek to provide "enhanced services". In a more rudimentary fashion, provincial governments and regulators have for many years engaged in segmented regulation in different ways such as by specification of certain services by statute as competitive rather than regulated or by giving the regulatory authority the power of "forbearance" in the exercise of its regulatory authority. Segmented regulation is a regulatory instrument which is particularly in accord with rapidly-changing developments in the "information business" and allows for the introduction of increased competition within a continuing framework of regulation. However, it does undermine to some extent the integrity of regulatory authority and can place partially regulated firms at a disadvantage vis-a-vis completely competitive firms.[265]

The fifth and final regulatory instrument on our continuum – and one allows for an even greater degree of competition – is structural separation. Structural separation can be accomplished most explicitly by the use of separate subsidiaries whereby a firm offers those services which are competitive through one or more financially independent subsidiaries operating separately from any monopoly services offered by the same firm. Structural separation has been an underlying theme in many of the CRTC's recent decisions but the Commission has not yet chosen to prescribe separate subsidiaries in any of its decisions, although it has scheduled an issue hearing to deal with separate subsidiaries for 1985. Bell Canada Enterprises, however, has promoted and preempted the issue of separate subsidiaries to some extent with its 1982 reorganization proposal.[266] By reestablishing a much smaller Bell Canada as a regulated subsidiary along with a large number of unregulated sister subsidiaries under the new parent company, the reorganization – skillfully stick-handled through the courts, the CRTC and the federal Cabinet – has forced government and the regulatory authorities to consider the use of this regulatory mechanism in a new light. Whereas separate subsidiaries have traditionally been regarded by regulators as a way of promoting increased competition, in this episode they were used by Bell more as a way of preserving monopoly and at a level of application considerably more general than normally considered when used as a way of separating monopoly from competitive markets. At the provincial level, structural separation has not received much attention from policy-makers and regulators who often feel that public ownership or small markets make separate subsidiaries inappropriate.[267] Nevertheless, structural separation does constitute one possible regulatory instrument for rejigging the balance between monopoly and competition and one which, if deemed appropriate, could allow for much more open competition within the telecommunications sector and the broader "information business" in Canada.

To conclude, then, in what direction does our discussion of monopoly, competition and the role of regulation lead? If the telecommunications sector were to remain a "regulated monopoly", the scope of regulatory authority would have to be expanded to include, at the very least, computer communications and probably much more. This was the implicit issue posed in the system interconnection case when the first opening for competition was forged. While there is still probably a predisposition in Canada to allow for a greater degree of state involvement than in the United States, it is nevertheless evident the growing appeal of deregulation makes the maintenance of full "regulated monopoly" politically unfeasible at the federal level and in at least some provinces. However, the recent movement towards increased competition in Canadian telecommunications has not yet – nor will it likely in the short-to-medium term future – result in a really competitive marketplace. Rather, it is likely that Canadian telecommunications will remain stalled for some time to come in a state of "regulated competition". Different forms of regulation – but regulation nonetheless – are likely to continue to be relied upon as a surrogate for the operation of market forces. Despite protests to the contrary, many of the major players in Canadian telecommunications – and not always the most obvious ones – would probably prefer a continued important role for regulation even with progressive movement towards increased competition. It is not at all clear that support for purer forms of competition is all that strong. In these circumstances, the task facing public decision-makers in Canada is to determine how much competition should be allowed in telecommunications and what kind of forms of regulation should be used to separate monopoly and competitive markets.

Issue 3: Costing, Pricing, and the Problem of Cross-Subsidization

The growth of competition and the emergence of both regulated and unregulated markets in telecommunications have pushed the problems of costing, pricing and cross-subsidization to centre stage. In the past, regulatory authorities, whether at the federal or provincial levels, focused their attention on the identification of aggregate costs as a way of justifying prices for the totality of services offered by the regulated carrier and used rate of return regulation to manage the overall profitability of the telco. In the process and over the years, a substantial degree of cross-subsidization has arisen principally, it is alleged, from long distance to local service but also between other services and among subscribers to the same services as well. More recently, competition from new entrants in what were previously monopoly markets as well as the expansion of the traditional telecommunications companies into other areas of the "information business" has brought the continuation of cross-subsidization into question both on economic and broader social grounds. Likewise, telecommunications pricing structures, which have been built upon this pattern of cross-subsidization, are coming under increasing pressure as a result of the development of bypass technologies among other factors that can make comparable telecommunications services available to major users at prices sometimes well below those of the regulated carriers.

At the heart of all these issues is the question of costs and what role they should play in pricing. As competition works its way increasingly into telecommunications, the traditional regulatory treatment of costs has been thrown into disarray. The crux of the problem resides in the presence of enormous joint or common costs in telecommunications. The same equipment is used to allow access to the local, intra-exchange and inter-exchange networks as well as for the transmission of data and for the use of enhanced or specialized services. The central problem, therefore, is determining how to allocate these common costs and, as the debate over alternative costing methodologies clearly suggests, this nut will not easily be cracked because the issue is as much a matter of politics as it is a matter of economics.[268] However, while the allocation of costs is essentially arbitrary and fundamentally political, it is nevertheless a necessary undertaking – if the goal is to continue the practices of "regulated competition".

Traditionally, cost allocation under regulated monopoly conditions was not a problem because regulation concentrated on the carrier's overall costs and the establishment of a reasonable rate of return on investment. However, the introduction of competition, with the associated need to determine appropriate rates for both competitive and monopoly services and to prevent the use of monopoly markets as a source of subsidy for competitive markets, has made it necessary for the regulator to somehow disentangle the various elements of cost appropriate to individual services.[269] As a response to this problem, the CRTC has continued to pursue its Cost Inquiry, which dates back originally to 1972 when telecommunications was regulated by the Canadian Transport Commission and is now in its third phase. The purpose of the Cost Inquiry has been to adapt regulatory procedures to the increased rate of technological change and to establish the information and procedures necessary for setting appropriate price levels for products and services which the telecommunications carriers wished increasingly to offer. Phase I of the Cost Inquiry dealt with accounting procedures, the treatment of deferred taxes and various problems associated with depreciation practices. Phase II, which was completed in 1978 after telecommunications regulation had been transferred to the CRTC, dealt with the costing of new telecommunications services and saw the CRTC accept an incremental costing methodology and require that, once such new services were profitable, they should contribute to the maintenance of lower rates for local service. Phase III of the Cost Inquiry, which has dealt largely with the problems created by the increased competition in the telecommunications sector which the CRTC has permitted in recent years, has come to focus on the development of a costing methodology which would allocate costs for existing services in order to allow for fair competition between the telephone companies and their competitors.

The Report of the Inquiry Officer was released in April 1984 but the issue is far from resolved.[270] The fully-distributed cost approach – one of the two main alternative methodologies – which involves measuring the costs directly attributable to the service in question and adding a common cost allocation based on relative use was rejected but an incremental cost approach with a separate category for fixed common costs, as was proposed by Bell Canada and BC Tel in its Five-Way Split, was also found wanting.[271] In this regard, the Inquiry Officer recommended instead that the Commission direct Bell and BC Tel to develop a costing method based upon the Revenue Settlement Plan and using specified revenue and costing categories.[272] The need to establish costing procedures has also spilled over to the provincial level. Thus, in Nova Scotia for instance, many of the same groups and individuals involved in the CRTC inquiry and most of the same arguments have received further consideration and, in other provinces, the pattern will likely be the same.[273] Given the continuing delays, diversion of regulatory resources and the arbitrary nature of the results of cost inquiry processes and taking into account the United States experience where FCC attempts to develop a costing methodology were summarily dropped in the 1970s, one might question whether the emphasis given to costing issues by Canadian regulatory authorities is appropriate.

The issue of cost allocation is intimately related to that of cross-subsidization. In our discussion of this issue, we will focus on three questions – what is it, does it exist, and is its continuation desirable? Turning to definitions first, cross-subsidization refers to a situation where prices for individual services do not reflect their costs and where one or more services priced above marginal cost support other services priced below marginal cost.[274] Analyses of cross-subsidization in telecommunications imply some understanding and agreement over the proper allocation of costs among services and, as we have already noted, this has not yet been achieved. Moreover, cross-subsidization tends commonly to be used in more than one sense. On the other hand, some participants and observers use the term to refer to situations where monopoly services are used unfairly to support competitive services and this is basically a technical matter to be policed by the regulatory authority. On the other hand, and in a more general demographic sense, cross-subsidization is often used to refer to pervasive patterns of service usage such that long distance users are alleged to subsidize local service users, business users subsidize residential users and that, even within the category of local service alone, urban users subsidize rural users.[275] This latter usage of the term raises important public policy considerations for which an adequate information base is not always available. And finally, there are still others who question whether or not the concept of cross-subsidization is really appropriate when applied to an integrated system such as the public switched network.

Does cross-subsidization actually exist within the telecommunications pricing structure? While most observers appear to accept the argument that it does exist, there are some who do not, whether for philosophic, tactical or pragmatic reasons, and there is also wide disagreement as to the extent and degree of cross-subsidization among those who do accept their presence. Among the strongest believers in the existence of cross-subsidization are Bell Canada and BC Tel who argue strenuously that they not only exist but are extensive. For example, Bell Canada has used its Five-Way Split costing methodology in part as a way of quantifying the extent of these cross-subsidies – an approach that derives much of its significance from the fact that it is the only one that has thus far been developed. Bell Canada reported, based on 1980 data, that it took 43 cents to generate $1.00 of long distance revenue but $1.84 to generate $1.00 of local service revenue; by 1982, the extent of the cross-subsidy had increased even more with only 32 cents needed to generate $1.00 in long distance revenue while $1.93 was needed to produce $1.00 in local service revenues.[276] However, there remains a significant group of provincially-regulated telco executives who do not believe that cross-subsidization exists unless one is to argue that the extent and importance of common costs means that everything cross-subsidizes everything. As well, others like NAPO and some academic experts claim it is not at all clear that long distance cross-subsidizes local service and that the relationship may in fact go the opposite way.[277] Certainly attitudes on the cross-subsidy issue largely parallel differences in self-interest. In essence, those who see their interests or those of their constituents endangered by the elimination of cross-subsidies, especially those purported to exist between long distance and local service, are least likely to recognize their presence or be concerned about them whereas those who have the most to gain from their elimination are, not surprisingly, their most vocal opponents. There are other organizations whose position seems more dictated by tactical considerations. CNCP, for one, has taken an agnostic view in its interexchange application, claiming it doesn't know whether such cross-subsidies exist or not.[278] And further, there are those who see the issue instrumentally in that, once one accepts increased competition in telecommunications, one must necessarily take a more critical attitude toward the possible presence and extent of cross-subsidies within the price structure. The federal DOC, for example, which until recently seemed largely unconcerned about this issue, has now sponsored a study of cross-subsidization between long distance and local service which concluded that, despite its revenue impact on telcos across the country and for consumers in terms of local service pricing, a limited degree of competition within the long distance market is both feasible and desirable.[279] While the existence and extent of cross-subsidization between local and long distance service has yet to be fully documented, there does seem to be general acceptance of the view that cross-subsidization not only occurs but is extensive. However, because individuals use a range of telecommunications services, the distributive implications of this cross-subsidization is even less well-known.

The desirability of continued cross-subsidization is yet another area of sharp dispute. Traditionally, it has been argued that the carriers had an important role to play promoting certain social objectives, especially universality, and to the extent that cross-subsidization occurs it has been justified largely in terms of its contribution towards those goals.[280] Proponents of increased competition and deregulation, however, see the existing pattern of cross-subsidization as just a pattern of entrenched interests being served at the expense of the public interest and at the expense of the efficiency of the overall economy. Attitudes toward cross-subsidies are beginning to change in government circles as well, both federal and provincial, as officials increasingly stress the need to move toward cost-based pricing in order to improve the overall competitiveness and efficiency of the economy. Moreover, within the private sector, Telecom Canada is not only built upon a foundation of seemingly extensive cross-subsidization but derives its organizational rationale and operating characteristics from that very practice but recent thinking suggests that even Telecom Canada may have to change. And finally, the dual pressures of bypass and increased competition seem certain to seriously threaten social goals like universality, regardless of how desirable their maintenance may be, and to continue to disrupt the comfortable patterns arising from cross-subsidization that have developed within and between government and the private sector.

The need for rate restructuring and the associated question of possible changes in the pricing practices of the telephone companies will likely be the most pressing issue in the next few years. Rate restructuring goes beyond the issue of costs and cross-subsidies in that, if the telcos are to operate in competitive markets both with other carriers and with companies using bypass technologies, then the prices of their services – especially long distance and irrespective of the actual extent of cross-subsidization – must fall and fall dramatically to reflect the marginal costs of their provision by "the Competition". Rate restructuring will disrupt any existing flow of cross-subsidies and likely force increases in local service rates to offset the revenue loss from lower long distance charges. At the same time, in the absence of significant rate restructuring, the incentive for extensive bypass on the part of large business users would be too great for regulators to sit idly by and allow it to occur. However, there are a variety of views as to the immediacy and importance of the rate restructuring issue, reflecting both the differing assessments of the threat of bypass as well as the differing interests of the various players. For instance, CNCP Telecommunications claims that competition should be introduced first and then, afterward, rate restructuring should be considered whereas Bell Canada and BC Tel see the need for "rate rebalancing" as the first priority even before increased competition is considered.[281] On the other hand, some provincial telco and government officials deny the need for rate restructuring altogether, reflecting their very real concern about the potential loss of long distance revenues and the pressure that would be put on local service rates. Particularly where governments own the telephone company, as in the prairie provinces, a doubling of local service rates might well defeat a government whereas, in Ontario, Quebec or British Columbia, either the federal or the provincial government could more easily distance itself from the result. Nevertheless, the general direction of events both in Canada and throughout North America would seem to indicate that rate restructuring of one sort or another will occur eventually and the important questions relate to how it will be undertaken and with what effects for local service pricing and the broader public welfare.

If rate restructuring is inevitable, then, there is still the question of how it can best be implemented in terms of revised pricing arrangements. A number of alternative approaches have been mooted, including the retention of flat rates for local service but at higher uniform levels, lifeline rates to allow low income consumers a minimal level of service at a reasonable price, reductions in the size of extended area service districts to control local service costs, targeted subsidies to replace existing cross-subsidies, increased use of peak-load pricing techniques and the separation of access from usage charges.[282] One particularly prominent pricing methodology that would allow for the use of many of these options is local measured service (LMS). By making the customer pay individually for all the calls that he or she makes and taking into account such factors as duration, distance and time of day when the call is made, LMS can make it possible to provide access at a minimal price while introducing the concepts of user pay and efficiency into local service. Proponents argue that LMS will make local service something with marketing potential for the carriers, reduce overall network capacity needs by redistributing usage, and allow individuals some degree of control over their bills. Opponents stress the increased monitoring and billing costs that would have to be recovered, the social impact of LMS on a society organized around cheap, unlimited local calling, and the likelihood that LMS would also be used to increase telco revenues. The crucial factor that is likely to lead to the adoption of LMS pricing will be the need for rate restructuring, with LMS being an attractive mechanism that would allow regulators to simultaneously retain something approaching universality while allowing the telcos to raise sufficient revenue from local service for it to pay its way.

It is instructive to briefly consider studies of the US experience with LMS. Three such studies are the GTE Illinois experiment, the Griffin and Mayor report on the impact of LMS on the Texas consumer, and the 1983 NERA study of residential demand for telephone service.[283] While these studies are far from conclusive, their results seem to suggest that most subscribers would receive lower bills because differences in patterns of usage tend to be significant and highly concentrated at the local level. If incentives are provided to encourage off-peak usage they will be successful and thus reduce the overall peak-load local capacity needs of the network. As well, the evidence suggests that low income users may not be hit as hard as some have suggested because the combination of relatively low access changes and low usage will result in lower overall bills. However, these studies may not have taken into account adequately the bypass problem in that, if LMS results in major increases in their bills, high usage local service subscribers may be further encouraged to adopt new bypass technologies.

In the Canadian case, local measured service is likely to be an issue of considerable importance in telecommunications policy and regulation over the next few years. In 1979, Bell Canada first put forward a "usage-sensitive-pricing" scheme – LMS by another name – for consideration by the CRTC but this was quickly withdrawn when public opposition arose.[284] More recently, BC Tel, Bell Canada and other Canadian telcos have been exploring the possibility of introducing LMS in some fashion and the issue has received considerable public and expert attention over the past year or so. In particular, a major national conference on LMS held in Montreal in May 1984, served to focus attention squarely on this issue. The LMS approach received a rather mixed response. BC Tel took the lead in arguing for LMS and Bell Canada indicated continued interest in this approach to rate restructuring while several academic experts argued strongly in its favour. However, there was also considerable opposition to LMS, with CBTA for example charging that the telcos had a "hidden agenda" – to forestall competition – while at least one senior telco executive indicated that he would do everything he could to prevent its introduction. Those who claimed to represent residential users were suspicious of it while the CRTC indicated that it had not yet taken a position on LMS and was only there to listen.[285] However LMS is not an idea which will easily be dismissed. It is interesting to note, for example, that the Quebec government has been advised that LMS would be inevitable if Bell Canada were to be provincialized.[286] Likewise, it is not at all clear that the major Canadian telcos see LMS as being in their short-term interests, though they are preparing the ground for this eventuality if it should become desirable.[287] From a public policy point of view, the possible introduction of LMS raises a host of questions including its likely impact on particular elements of the population, the re-definition of universality under LMS, how the telecommunications system would work if LMS were to be introduced in one jurisdiction but not in others, and, not least important of all, how any government and/or regulator might be persuaded politically to endorse an LMS proposal.

While the issues relating to costing, cross-subsidization and pricing all present themselves as technical in character, they have political dimensions embedded within them. The issue of cost allocation has important arbitrary elements and it is the effort to find an acceptable solution to this arbitrariness that continues to confound regulators and raises the question as to whether extensive cost-based regulation can be effective. Similarly, the cross-subsidization problem, the character and nature of which reflects the costing problem, is one that pits those with vested interests in the maintenance of the status quo against those who will benefit from the elimination of the alleged cross-subsidies. Further, the alternatives of rate restructuring before competition as against the introduction of competition first with rate restructuring to follow hold up quite different consequences for industry groups in the private sector with the telcos having the most to benefit from the former while "the Competition" would benefit most from the latter. And finally, the pricing issue with its various solutions also provides for diverse beneficiaries. For instance, a flat rate solution would see moderate users continuing to subsidize heavy users while a usage-sensitive solution like LMS would pose serious problems for some residential and business subscribers who, for one reason or another, would have difficulty financing their present pattern of usage. The appearance of technical neutrality in costing, cross-subsidization and pricing debates, then, is an illusion and one that will become increasingly apparent as the impact of technological change and increased competition in the telecommunications industry becomes more evident.

Issue 4: The Prospects for Jurisdictional and Regulatory Reform

Jurisdictional and regulatory reform – both of which are items which have taxed the energies of government and industry as well as the attention of the Canadian public in recent years – will also continue to occupy the public agenda in Canada and have important implications for the future of Canadian telecommunications policy and regulation in Canada. Until now, the two items have tended to develop separately, each with its own history and impediments, but there is reason to believe that a linkage between them is beginning to take place. Jurisdictional reform as it developed during the 1970s and into the 1980s, focused on attempts to establish and then entrench a new division of powers between the federal and provincial governments in the communications field. In the absence of agreement on explicit constitutional change, however, the focus has shifted recently to an exploration of joint federal-provincial regulatory arrangements and to litigation as a way of clarifying federal and provincial jurisdiction in the area. On the other hand, the movement for regulatory reform in Canada developed over precisely the same time period, concentrating initially on changes in the regulatory process at the federal level and, more unsuccessfully, upon substantive deregulation and the stimulation of greater competition in highly regulated industries like the telecommunications sector. Any possible convergence of jurisdictional and regulatory reform, then, is largely a product of failure – the inability on the part of the two levels of government to work out a mutually satisfactory division of powers between themselves and the lack of enthusiasm to date among government and important industry actors for substantive deregulation. In future, however, the linkage of jurisdictional and regulatory reform might well create conditions under which both objectives might be advanced if not fully achieved.

The configuration of forces which is presently at work with regard to jurisdictional reform is complex. Constitutional negotiations between the federal and provincial governments in the area of telecommunications have been at a stand-still since the early 1980s and efforts to arrive at extra-constitutional reforms and to clarify federal and provincial jurisdiction through litigation are progressing slowly. With regard to constitutional negotiations, neither the federal nor the provincial governments have pressed their jurisdictional claims since the breakdown of discussions in 1981.[288] The federal government has shown little interest in the matter nor have they renewed any of the elements of their offer which provincial governments found acceptable. Those provinces which regulate and in some cases own their own telephone companies have been most concerned about any federal regulation of interprovincial long distance rates and services and, particularly because of their heavy dependence on toll revenues, how this might disrupt long-standing patterns of cross-subsidization and provincial telecommunications planning. As well, those provinces which do not presently regulate the major telephone companies within their boundaries have down-played, for varying reasons, any interest in gaining jurisdiction. Attempts at working out extra-constitutional solutions such as working groups or task forces of federal and provincial officials which have looked at competition and industry structure and at possible regulatory mechanisms have found that, when reports were finally made, their respective ministers could not agree to follow through on them.[289] It is of interest, however, that major industry players have in recent years taken it upon themselves to become involved in the issue of jurisdictional reform. CNCP Telecommunications, in particular, has led the way in making a major proposal for a joint federal-provincial regulatory board which would reflect and act upon the "national dimension" in telecommunications while Telecom Canada generally—and Bell Canada in particular—have indicated a willingness to accept provincial regulation in those areas presently under federal jurisdiction.[290]

With regard to regulatory reform in the telecommunications area, matters have also more or less ground to a halt. The Economic Council's 1980 proposals for regulatory reform, both substantive and procedural, and the subsequent Parliamentary Task Force Report in 1981 which dealt only with the latter aspect represent the most comprehensive attempts to deal with this issue. The response on the part of telecommunications providers and users to most of the procedural proposals, especially tightening up government controls over regulatory agencies through the policy directive power and the abolition or appeals to Cabinet, has been predictable but chaotic. Early in 1984, after an unexplained delay of some years and as part of a package of measures to deal with the Bell Canada reorganization, the federal government introduced Bill C-20, which made provision for a policy directive power but made no change in Cabinet appeals, but the proposed legislation died on the order paper without even having received second reading in the House of Commons when dissolution finally came. For their part, some provinces have included a policy directive power in proposed provincial legislation but, in Nova Scotia at least, this provision drew crucial opposition from the regulator and has not yet been put into law. Of perhaps greater importance to federal and provincial policy-makers and regulators has been the design of possible joint regulatory mechanisms which would allow the two levels of government to consult and cooperate on certain decisions of mutual interest but the stumbling block that has arisen lies in the fact that, to operate successfully, the jurisdictional powers of both levels would have to be compromised and agreement would be necessary among governments as well as regulators.[291] With regard to substantive deregulation as opposed to procedural reform, there has likewise been no broad consensus and firm leadership as has been the case with regard to airline deregulation.[292] It has been pointed out, however, that only about 5 percent of Canadians in any given year make use of the airlines – and many of these benefit from lower fares much more than others – while well over 90 percent of Canadians have access to a telephone and any serious move to deregulation would undoubtedly raise local rates to at least some extent for a substantial proportion of Canadians. In these circumstances, it is not surprising that progress towards regulatory reform, both substantive and procedural, has thus far been slow.

Before looking more specifically at the present situation and future prospects, it is important to attempt to explain why there has been so little success in bringing about jurisdictional and regulatory reform. In each case, the political factors have been rather different but the results have been much the same. With regard to jurisdictional reform, the territorial imperative reigns supreme in that both the federal and provincial governments have each sought nothing less than "exclusive rights over telecommunications" and are more than prepared to see the division of responsibility over the communications sector in terms of "sovereign parcels of territory".[293] In this situation, neither the federal nor the provincial government has had any incentive to accept some compromise solution short of meeting their minimum objectives or holding stubbornly to the status quo. As well, there have been no "third parties" in the form of powerful industry protagonists or persuasive spokesmen for compromise from within government at either level which have had to be taken seriously into account. With regard to regulatory reform, procedural changes of various types are acceptable—and even desirable—to a wide range of actors, including both levels of government, industry, and the public, but it is the prevailing pattern of interest group representation which has been at the core of opposition to substantive regulatory reform in the telecommunications area. In the absence of leadership from a committed Prime Minister or a strong Cabinet Minister, the governing party has tended to follow where the interest groups have led and the civil service—given in the past their general aversion to deregulation—have raised little objection. Despite visible and vocal minorities to the contrary, support for deregulation among the general public is weak and, to become significant, would appear to require that Canadians strengthen their belief in market forces vis-a-vis the ability of government policy-makers and regulators to plan, co-ordinate and control the actions of both privately and publicly-owned enterprises.[294] Thus, for quite different reasons, what have in the past been viewed as separate items have both seemingly reached an impasse at the same time that technological change and pressures for competition give no indication of abating.

Several lines of development, however, suggest an increasing overlap and interdependence between efforts at jurisdictional and regulatory reform which, together, holds some promise and modest hope for moving beyond the present stalemate in telecommunications regulation in Canada. First and foremost is the increasing involvement of "third parties" in addition to federal and provincial policy-makers and regulators in these efforts. Governments at the two levels are almost totally responsible for the impasse which has arisen with regard to jurisdictional and regulatory reform but, in recent years, the importance of the issues at stake has prompted various telecommunications providers, business users, public-interest groups, the Director of Investigation and regulators themselves to enter the fray. It is important to note that it was business users who initiated the terminal attachment hearings and public interest groups who pressed the need for a full public airing of the Bell reorganization proposal while the Director of Investigation under the Combines Investigation Act has become a persistent voice for increased competition before provincial as well as federal regulatory bodies. More importantly, CNCP Telecommunications as the major player to date among "the Competition" has clearly identified the jurisdictional and regulatory impasse as a major obstacle to increased competition.

Through its highly publicized proposal for joint federal-provincial regulatory board and, even more so, through its litigation to gain interconnection in Alberta, it has effectively advanced the pace of efforts at jurisdictional and regulatory reform.[295] Likewise, the reorganized Bell Canada has indicated a willingness to operate in Ontario and Quebec either under continued federal regulation or under appropriate provincial legislation. However serious it may have been, the "leasing" proposal which it floated in 1983, whereby separate provincial subsidiaries of Bell Canada would be created, raises in a different guise the possibility of delegation of federal regulatory authority to the respective provincial governments and it should be noted that the federal government's attempt to buttress its authority to block any unilateral leasing arrangement which might alter the jurisdictional pattern died on the order paper with Bill C-20.[296] Thus, "third parties" are beginning to play an increasingly aggressive role on matters of jurisdictional and regulatory reform as on other issues affecting telecommunications regulation.

A second line of development relates to the slow progress being made towards joint federal-provincial regulatory arrangements to deal with those areas where the jurisdictional power and regulatory actions of the two levels of government intersect or overlap in the telecommunications field. The proposal for a joint federal-provincial regulatory board or panel has been put forward as an extra-constitutional device which could be agreed to without any significant modification in the prevailing allocation of roles and responsibilities and has received a great deal of attention from academics and, most recently, from a federal-provincial working group which has prepared alternative formats for such an arrangement.[297] Up to now, provincial governments have been led by the logic of their position on jurisdictional reform and the details of how such an arrangement would work to strongly support the proposal, especially in its board format. The federal government has thus far been more circumspect in expressing its viewpoint but it would seem that its support might be more forthcoming if the arrangement followed a panel rather than a board format. The particular utility of following the joint federal-provincial panel format is that it builds very much on previous CRTC experience with the TCTS rate case and certain other issues and because it would not entail any major change in existing regulatory powers or machinery at either the federal or provincial level.[298] A more modest proposal – and one which could prove beneficial – is the initiative by the CRTC to become a member of CAMPUT, an initiative which has now been accepted by their provincial counterparts, thereby allowing for informal if not formal contact on an inter-regulatory basis between federal and provincial governments. In each case, however, the impediment to acceptance rests more with the politicians rather than the civil servants and regulators but this may change as a result of the recent federal election.

A third line of development concerns possible changes in the role of the regulatory agency in the telecommunications field, whether it be the CRTC or provincial regulatory bodies. The power on the part of government to issue policy directives to the regulatory body and the matter of Cabinet appeals against its decisions have been areas of considerable concern but there is also the question of whether regulatory bodies should have more explicit powers not to regulate where they so decide. The federal government has been on record as favouring the policy directive power since 1973 and this commitment was reconfirmed in the recent federal broadcasting strategy and Bill C-20. Provincial governments and many major players – with the exception of NAPO which opposes it because of the potential for undue political interference – are strongly in favour of this change because it would make the policy-making process more straight forward and the CRTC itself can hardly object to a measure which would ensure the proper responsibility and accountability of elected representatives for what are supposed to be major policy decisions.[299] With regard to appeals to Cabinet, there is less complete agreement but there is at least a strong consensus that the process should be rationalized if not abolished. Major telecommunications providers, including both Bell Canada and CNCP, continue to like the safety valve provided by the right of Cabinet appeal while the various user groups argue at least for visible and regularized procedure for handling such appeals. It is the CRTC and certain provincial regulatory agencies, whose decisions have on several occasions been varied or rescinded, that makes the strongest case against appeals to Cabinet and one which is powerfully reinforced if government has already been allowed to issue policy directives prior to any final decision by the regulatory body.[300] One final concern about the role of regulatory bodies relates to the power of "forbearance" – its right not to regulate if it so decides. At the federal level, in particular, it is not clear that a regulatory body like the CRTC, for example, has the explicit power within its statutory responsibilities to forbear from the exercise of its regulatory powers and this becomes a matter of greater importance if the federal government wishes to move towards substantive deregulation.[301]

A fourth line of development relates to the increasing involvement of the courts in determining the limits of jurisdictional and regulatory authority over telecommunications. Just as was the case with regard to cable television during the 1970s, the courts are being asked by one or other of the players to render important judicial determinations which will have far-reaching implications for the future of telecommunications policy and regulation in Canada. The application by CNCP Telecommunications to the CRTC in 1982 to order Alberta Government Telephones to grant interconnection to its province-wide network is a case in point.[302] There has long been a view that federal jurisdiction over interprovincial telephone rates and operations exceeded the regulatory powers actually exercised by the CRTC and that the CRTC might, under certain circumstances, have the authority to order provincially-owned and/or regulated telephone companies to take certain actions because of the "national dimensions" of telecommunications networks.[303] In 1984, the Federal Court of Canada rendered the initial decision – though not likely the final one – on AGT's motion for a writ of prohibition to prevent the CRTC from proceeding with the CNCP application and that decision turned very much upon the two issues of the extent of federal jurisdiction and the question of interjurisdictional immunity. The Federal Court denied the AGT contention that the CRTC lacked jurisdiction because the provincial telephone system was a "local work or undertaking" in the constitutional sense of that term and instead followed the line of argument that it was part of an integrated nation-wide network which could not be split off separately in terms of its provincial component. On the second issue, however, it accepted the AGT argument that the doctrine of "crown immunity" precluded the CRTC from giving orders to a provincially-owned and regulated corporation without specific and sanctioned statutory authority.[304] Thus, the Federal Court granted the AGT motion on the latter grounds but, in so doing, created a variety of openings for appeal and further litigation. More importantly, however, the courts have now become directly engaged in the clarification of jurisdictional and regulatory authority over telecommunications and, for better or worse, this will have important consequences for all players within the broader political process.

Throughout our analysis, one factor common to jurisdictional and regulatory reform as well as to each of the other issues we have discussed stands out, namely the relentless impact of technological change on the institutional framework which has grown up over the years in the communications field.

Technological advances from cable distribution to satellite transmission to computer communications have simply overridden the simple jurisdictional distinctions made to deal with what are complex technological and social problems. Likewise, technological advance is also exerting a profound impact on the traditional regulatory system, undermining monopoly practices which have always justified the need for regulation and breaking down long-standing industry boundaries so necessary for effective regulation. Technological advance in the communications field, then, is very much the "great deregulator", and one which operates with equal vitality upon policy-maker as well as regulator and at either the federal or the provincial level.[305]

Options for the Future: Problems and Prospects for Telecommunications Policy and Regulation in Canada

The time has come to switch from our analysis of the past and the present to focus on the future of telecommunications policy and regulation in Canada. Predicting future developments is a task which political scientists—like other social scientists—are usually loathe to do, while at the same time they often develop reasonably firm views as to what is likely to happen and whether or not it is desirable. With regard to the future of telecommunications policy and regulation, the task is particularly difficult because of the rapidity of technological change and the as yet uncertain impact of increased competition across the country. Likewise, the steady expansion of the number of players, each with their own views and interests, as well as the often subtle features of the political and regulatory processes within which they operate make accurate prediction difficult. The touch stone upon which we base our present venture into prediction is the one identified by Marc Porat at the outset of this paper, i.e. "political feasibility". During the course of our research and interviews, we have examined in some detail the various issues treated in the previous section and explored a number of options for the future which grow out of this analysis. In this final section of the paper, then, we propose to look five to ten years into the future and, on the basis of what we judge to be politically feasible in the Canadian context, to highlight the key problems and the options which are likely to shape the future of telecommunications policy and regulation in Canada.

Options for the Future: Breaking the Jurisdictional and Regulatory Impasse

The wild card in looking at the future of telecommunications policy and regulation in Canada is whether effective ways of breaking the jurisdictional and regulatory impasse can be found. The present pattern of jurisdiction and regulation – however much it can be argued that its "inelegance" and "complexity" has not prevented the building and operation of a first-class telecommunications system – has become a real impediment to further evolution of the telecommunications sector and the broader "information business". As we have pointed out earlier, there is evidence to suggest that efforts at jurisdictional and regulatory reform are perhaps beginning to overlap and become increasingly interdependent and that this perhaps holds the key to breaking the impasse at which each has separately arrived. There are at least four areas where jurisdictional and regulatory reform can be advanced over the next five to ten years:

> First of all, through negotiation or litigation, it is necessary to clarify and then redefine the roles and responsibilities of the federal and provincial governments in the telecommunications field.
>
> Second, whatever the particular division of powers which emerges, suitable mechanisms for consultation among policy-makers and coordination among regulators at both levels are required.
>
> Third, something must be done – whether by way of constitutional reform or interdelegation – to rationalize the legitimate "national dimension" within telecommunications with the proper role and responsibilities of all provincial governments – including Ontario, Quebec and British Columbia – in regulating intra-provincial services and network planning.
>
> Fourth, there must be a clearer distinction made at both the federal and provincial levels of government between the policy-making and rule-making activities of regulatory bodies so that proper accountability can be established.

Only if progress is made in the area of jurisdictional and regulatory reform can it be reasonably expected that movement towards substantive deregulation can take place in an orderly and effective manner.

Clarification of Jurisdictional Division of Powers

When all is said and done, this has been the elemental source of failure underlying previous attempts at jurisdictional and regulatory reform. Federal and provincial governments have advanced their rival claims to jurisdiction over telecommunications based upon their own "territorial imperative" and governmental and private sector initiatives towards regulatory reform have become entangled in this web. At the same time, neither level of government has been prepared in the final analysis to make the necessary compromises to reach agreement nor have they been willing to see the matter decided conclusively by the courts. The AGT-CNCP case which has now been decided by the Federal Court of Canada – and which will undoubtedly be appealed by one party or another and probably lead to further litigation – has the potential to go some way towards clarifying the jurisdiction of the federal and provincial governments in a particularly significant and contentious area of telecommunications policy and regulation. In the wake of this important decision and however much it may be subject to appeal and further litigation, there are a variety of avenues for future development which might open up. Despite its apparent victory, AGT – not to mention the other provincially-regulated telcos and the provincial governments – must be somewhat concerned about the extent to which federal jurisdiction over interprovincial telephone rates and operations has been confirmed and what this implies for ongoing provincial regulation and future federal-provincial negotiation. On the other hand, CNCP Telecommunications, even though it lost the case on the "crown immunity" issue, must be encouraged by the fact that the "national dimension" underlying telecommunications policy and regulation has been sustained and it is reasonable to assume that the company will seek to press its advantage and perhaps to place a similar application in one of the Maritime provinces where the government does not own the telephone company. For its part, the new Progressive Conservative government faces a dilemma as to whether or not to press ahead and attempt to consolidate federal jurisdiction in this area even though it goes against its stated objectives of federal-provincial harmony and less regulation. Whatever direction future developments take, this particular "resort to the courts" and others which might follow could help considerably to clarify federal vis-a-vis provincial jurisdiction in the telecommunications field. At the same time, however, it must be remembered that judicial review can go only part of the way towards a full resolution of the roles and responsibilities of the two levels of government and future efforts at constitutional reform – now under the less restrictive provisions of the amending formula in the 1982 Canada Act – should not be ruled out.

Rationalization of the Roles and Responsibilities of Governments
At the present time, the federal government exercises authority over the "national dimensions" of telecommunications such as the radio frequency spectrum, satellite transmission, and international telecommunications activities at the same time that the CRTC regulates local telephone service provided by Bell Canada in Ontario and Quebec, BC Tel in British Columbia, Terra Nova Tel in Newfoundland and Northwest Tel in the Yukon and Northwest Territories. For their part, however, the provincial governments in Ontario, Quebec and British Columbia can influence decisions concerning the major telephone company within their province only through intervention in the federal regulatory and political processes and, of course, hold no responsibility vis-a-vis their electorate for regulation of those systems. Delegation of federal regulatory power to the provincial governments was proposed as late as 1980 but the federal government subsequently withdrew that proposal when the constitutional reform discussions proved fruitless. At the same time, Quebec and British Columbia have continued to press for provincial control over their telephone systems whether this be achieved by constitutional reform or interdelegation. It is in this context that Bell Canada's 1983 suggestion that it might pursue a "leasing" arrangement with regard to its telephone operations in Quebec and Ontario should be assessed. By disrupting the administrative framework whereby federal jurisdiction and regulation has until now been exercised, such a "third party" initiative might put pressure on the federal government either to block the move or to offer to delegate responsibility to those provincial governments. For their part, the three provincial governments are not equally enthusiastic about the prospect, with the British Columbia government seeking regulatory control but not management of BC Tel, the Quebec government seemingly interested in both regulatory control as well as management control of Bell Canada operations within the province, and the Ontario government on the public record as interested neither in control nor management. On the part of Bell Canada, such an initiative would involve a division of existing assets and revenues from joint operations and the establishment of Bell Quebec and presumably a similar Bell Ontario company. Such a scenario is probably unlikely unless the federal government itself was to gain clearer jurisdiction over interprovincial telecommunications and decide deliberately to delegate intraprovincial regulatory control to whatever provincial governments wanted it or unless Bell Canada were to find federal regulation too restrictive and seek to shift the locus of

regulatory control. Despite these multiple contingencies, the essential plausibility of such a scenario demonstrates how a rationalization of the roles and responsibilities of the two levels of government somewhat along those lines is at least a possibility over the next five to ten years.

Mechanisms for Consultation and Coordination

Consultation and coordination within the federal system in Canada are very much a function of "political will" and it was in this respect that previous attempts at designing improved mechanisms have foundered. It has not been for a lack of trying as several attempts at consultation and coordination since the 1970s attest nor any dearth of alternative mechanisms as the results of the federal-provincial working group has demonstrated. Rather, the fault has been the unwillingness of governments to commit themselves to one formulation or another. Clarification of jurisdiction, however, would put increased pressure on governments at both the federal and provincial levels to finally arrive at suitable mechanisms for consultation and coordination. Interestingly enough, though, the pressure on governments may well be in the obverse way to which their positions on this issue have developed up to now. If provincial jurisdiction were to be confirmed or enhanced, provincial governments might well be tempted to look more favourably on the "panel" approach whereby the jurisdiction of the two levels of government would be most clearly preserved. If federal jurisdiction were to be sustained, on the other hand, the federal government might then be more willing to accept a permanent "board" as the best way to assert and express its expanded jurisdiction. Even if neither the "board" nor the "panel" approaches proved acceptable, CRTC membership in CAMPUT may prove an acceptable compromise and an effective first step toward greater understanding and policy coordination. Whatever way federal and provincial jurisdiction is clarified, then, the "political will" to reach decisions as to suitable regulatory mechanisms would probably be enhanced. And the more important result would be that the federal and provincial governments might be able, on a reasonably stable basis, to work together on issues which affect the exercise of their respective regulatory authority and even to implement mutually acceptable policy directives coming from their respective governments.

Policy-Making versus Rule-Making Within Regulatory Agencies

Canadian regulatory agencies, and especially the CRTC, have long been criticized for engaging in what really constitutes policy-making beyond the rule-making authority delegated to them by Parliament. Such concerns have been expressed most prominently by provincial governments and regulators who see CRTC decisions as an obstacle to the conduct of federal-provincial relations and by telecommunications providers and users critical of excessive regulation. Any changes in this area hinge very much on what one considers the proper role of the regulatory agency in a parliamentary and federal system of government. There is probably a general consensus that regulatory agencies cannot be independent bodies in Canada as is more or less the case in the United States but can only, and should only, be quasi-independent. If this premise is accepted, then both the government's power to issue policy directives to the regulatory agency and the right of Cabinet appeal from agency decisions must be acknowledged. The power to issue policy directives quite appropriately let government set the framework and limits within which the regulatory agency must operate and not allow the regulatory body become a "loose cannon on the deck". On the other hand, the right of appeal to Cabinet should probably be retained as the most efficient way for allowing dissatisfied parties to make their case to the ultimate political decision-makers but, as many players have argued, there should be a more systematic and open process for handling such appeals. In particular, the ongoing debate over both the directive power and the right of appeal highlight the "bureaucratic politics" which has until now characterized relations between the DOC and the CRTC and resolution of these points over the next few years will be a good indication of whether the jurisdiction and regulatory impasse can be broken.

Options for the Future: Separating Monopoly From Competitive Markets

As we have already argued, "regulated competition" – despite its inherent contradictions – will likely remain the dominant characteristic of telecommunications policy and regulation in the 1980s. Technological change and pressures for increased competition will continue unabated and be reinforced by the general trend of developments in the United States where both of these forces are much stronger. In Canada, however, substantive deregulation is not likely to be as successful both for political and economic reasons. Not only does the political rationale for continued regulation – "re-regulation" as the former Minister has characterized it – remain strong but it is also unlikely that the economic confidence which would allow for the operation of a free and open telecommunications marketplace in Canada is yet present. At the same time, concern about broad social goals such as universality, sovereignty, and equity of treatment will likely inhibit any dramatic move towards unfettered competition. Moreover, because the telcos remain dominant firms within the telecommunications sector and the broader "information business", the emphasis on "regulated competition" in the context of their market power will make it increasingly necessary to find ways of separating monopoly from competitive markets:

> First of all, barriers to entry into telecommunications are likely to continue to fall and an expanded range of providers will emerge with their own views and interests to press within the regulatory and political processes.
>
> Second, mandated requirements to serve social and national objectives will come under increasing challenge as telcos move into a more competitive mode and there will be pressure for government to assume more responsibility for achieving these goals – if they are to be preserved.
>
> Third, market sharing enforced by the regulator and declared to be effective competition is likely to become an increasing feature of the Canadian telecommunications scene but with some unfortunate consequences.
>
> Fourth, selective regulation imposed on one competitor but not on others within a market is also likely to remain prominent.
>
> Fifth, the major alternative to behavioral regulation and one which would move Canadian telecommunications decisively towards competition would be to require separate subsidiaries and this will become a major battleground in the years to come.

Thus, it is likely that policy-makers and regulators will continue to operate more or less in the twilight zone of "regulated competition", although this is likely to be more the case at the federal level than at the provincial level.

Further Erosion of Barriers to Entry

Barriers to entry – especially in the long-haul transmission area but not so much with regard to local service – will continue to fall with important consequences for telecommunications policy and regulation. The CRTC has taken the lead in this regard and more recently has been joined by the DOC but, as yet, many of the provincial governments have been cautious and hesitant if not hostile because of their desire to protect their major carriers and retain the benefits of the existing system of cross-subsidization. However, pressures from "the Competition" for the progressive elimination of continuing barriers to entry will increase and have a further impact at both the federal and provincial levels. It should be noted that, as barriers to entry fall, not only does the range of providers expand but the number of views and interests which have to be accommodated within the regulatory and political processes also increases. Several important consequences flow from this analysis. First of all, monopoly practices will be increasingly difficult to sustain especially in the area of long-haul transmission and, for example, a competitive domestic satellite business may well emerge within the next few years as an alternative to the possibility that foreign carriers could syphon off Canadian traffic. With regard to local service, cable, cellular and other local service alternatives will nibble away at the telco monopoly but they are unlikely to seriously jeopardize it. And finally, the battleground over barriers to entry will shift more and more to the provincial level where there is much less sympathy at present for increased competition.

Mandated Requirements to Serve Social or National Objectives

Increased competition will necessarily put pressure on certain mandated requirements such as universal service and the pattern of cross-subsidization between long distance and local service that have gained widespread legitimacy as desirable objectives in telecommunications. Over the years these objectives have come to be accepted as legitimate by the telcos, governments and the public at large. Given technological change and the alleged benefits to be realized from increased competition, it is certainly a valid question to ask whether and how these objectives should continue to be pursued in future and these matters will have to be sorted out in the context of the broader political process as well as through regulatory decision-making. The first order of business, then, is to decide which social or national objectives should be pursued and, in this regard, leadership from both the federal and provincial governments is clearly required. Once an objective such as universality has been clearly set, it may well be necessary to impose those objectives on Canada's telecommunications companies formally and make them treat such objectives as part of the cost of operating their networks, regardless of the unfair competitive position this might put them in. To some extent, it may be possible to sustain this objective through measures such as lifeline rates without doing serious damage to the price structure of the telcos and their competitive position. Alternatively, however, it may be appropriate that these objectives be pursued through targeted subsidies and administered not by the telcos voluntarily or imposed by regulatory authority but rather provided by government itself, although the financial stringency of the times would certainly seem to militate against such a shift from private to public sector responsibility. Whatever the final determination eventually made, there is likely to be considerable variation across the country in terms of the obligations placed on Canada's telecommunications companies and the responsibilities assumed by governments, and this will place further strain on the existing structure of Telecom Canada.

Enforced Market Sharing as Artificial Competition

While increased competition is becoming more apparent in telecommunications, a significant proportion of it is taking the form of enforced market sharing. This has been the approach taken by the CRTC with regard to certain private line services, the DOC has adopted it very clearly in the case of cellular mobile radio, and it may well be the ultimate outcome of the interexchange proceeding. This approach reflects the very real problems associated with the market power of the telcos as compared to their competitors. However, enforced market sharing has some disturbing implications, particularly the fact that the result may be duopoly or oligopoly and some modest degree of choice but not free and open competition and, further, that such a market structure may itself become as much a barrier to entry as it is a licence for limited competition. It represents an attempt on the part of the regulator to handicap the players within a particular market and raises serious equity questions both for those operating within such markets and for those excluded from them. This regulatory mechanism has so far been most attractive to federal regulators while provincial regulators have deliberately shied away from it, believing that provincial jurisdictions are too small for such an approach and that few benefits can accrue to the province as a result. Enforced market sharing should probably be used cautiously and infrequently because it may exaggerate the promotional and protective elements inherent in the role of the regulator and it can be a particularly pernicious form of "regulated competition" both for the regulator and for the future of the telecommunications industry.

Segmented Competition to Restrain Market Power

Yet another approach to the separation of monopoly from competitive markets, and one which involves less regulatory control, is that of segmented regulation. At the present time, regulating the telephone companies for certain specific functions but not their competitors in value-added markets is becoming increasingly prevalent – and may become more so in the years to come – as both the United States and Canada move at different paces towards substantive deregulation. It is also controversial because, if increased competition is the way to go, then it is usually argued that the competition should be as open and unfettered as possible. Given the continuing market power of the telcos and the adolescent state of competition within the telecommunications sector and the "information business", however, it is probably inevitable that a degree of segmented regulation will exist for some time to come. Some industry groups and public interest representation will continue to insist upon full regulation of the telcos and the telcos themselves can be expected to complain about equity of treatment and the need for a "level playing field" but policy-makers and regulators are likely to favour such compromise solutions. Even though segmented regulation is less intrusive a form of regulation than many of the others available, it should be recognized that, in a fundamental sense, when one major player in an industry is regulated for certain purposes, then all of its competitors are in a sense regulated as well.

Structural Separation as the Key to Greater Competition

Finally, if the telecommunications sector is eventually to move beyond "regulated competition", then efforts will have to be made to substitute structural regulation for behavioral regulation. Attention will increasingly focus on such structural solutions like separate subsidiaries as a way of establishing and maintaining a real separation between the activities of multi-product firms operating both in monopoly and competitive markets. Cross-subsidization of competitive by monopoly services is clearly a danger and, as opposed to detailed costing methods employed by the regulator, separate subsidiaries and other forms of structural separation offer a less intrusive way of dealing with this problem. Separate subsidiary requirements potentially allow for a greater degree of open competition within appropriate markets and, as long as one does not go too far in pushing the requirement, may well become acceptable to many of the players within the industry. However, it should not be assumed that separate subsidiaries are a "panacea" because, given the dynamics of corporate inter-relationships, ensuring the independence among subsidiaries will be a difficult task to accomplish from an accounting as well as other perspectives and clearly separate subsidiaries are not suitable for use in all situations. Likewise, the relevance of this approach in many provinces would seem to be less obvious because of the smaller scale of operations involved. A key indication as to whether the separate subsidiary approach is likely to be pursued at the federal level will be whether or not the federal government reintroduces legislation giving the CRTC the powers necessary to monitor Bell Canada Enterprises and, of course, how the Commission deals with the issue in its upcoming issue proceeding on structural separation scheduled for 1985.

Options for the Future: Moving Telecommunications Prices Towards Costs

The problem of moving prices for telecommunication goods and services closer towards the costs involved in providing them has become a major preoccupation within the Canadian telecommunications sector. Faced with the threat of bypass and increased competition, policy-makers and regulators as well as the industry itself will have to deal with two major concerns: whether and how to maintain social and national objectives in the absence of the apparent cross-subsidization between long distance and local service and whether and how to achieve any rate restructuring that might be decided upon. On the first point, the responsibility lies primarily with government to set down what these social and national objectives should be while, on the second one, the initiative rests primarily with industry and its various players to present appropriate proposals for consideration. The process of moving prices to costs involves political considerations as well as economic ones and could prove to be highly divisive with serious potential consequences for federal-provincial relations and politicization of telecommunications issues. The major elements in this process include the following:

First, the validity of the costing approach to telecommunications regulation must be determined once and for all and decisions made as to where costing fits within the exercise of regulatory authority.

Second, the present cross-subsidization between long distance and local service will increasingly be reduced and decisions will have to be made as to whether and how certain social and national objectives are to be maintained.

Third, it will have to be determined how the process of "rate rebalancing" should occur before, after, or at the same time as increased competition is introduced into the long distance area.

Fourth, new approaches to pricing of telephone service such as local measured service will have to be considered as alternatives to traditional pricing principles but it is by no means clear that they will be adopted widely across the country.

Moving prices towards costs is a process which is not likely to occur quickly and painlessly nor can it be orchestrated by any one of the "players in a game without masters".

The Validity of the Costing Approach

It is not yet clear what value the development of elaborate costing methodologies will have in allowing for better regulation of the telecommunications sector in Canada. In the United States, the costing approach was tried and found wanting as a way of allowing the regulator to gain the information necessary for more effective regulatory decisions. As we have already argued, there is no foolproof and objective way of determining what the real costs of telecommunications services or categories of services are and a serious danger lies in the sense of misplaced concreteness which can arise out of the formulation and application of whatever costing methodology is followed. In any case, the first substantive results of the CRTC's attempts to develop costing methodologies for existing services are not likely to be available until probably the end of the 1980s and, by that time, many of the major decisions on increased competition will, presumably, already have been made. As well, the applicability of any costing solutions will apply only at the federal level and it is not clear that provincial governments are disposed to follow the federal lead nor that the telecommunications sector in Canada will find such requirements as anything more than an additional regulatory burden. Costing solutions, while intellectually satisfying in themselves perhaps, can only prove useful if "regulated competition" is to be maintained and it may well be that structural separation and reliance on more extensive and purer competition is the better route to follow.

The Reduction of Cross-Subsidization

Any reduction of cross-subsidization between long distance and local service will inevitably expose local service rates to considerable upward pressure and challenge prevailing objectives such as universality. Increased competition in the long-haul market, whether it takes the form of interexchange competition or a competitive satellite business or both, would put pressure on the telcos to meet "the Competition" by lowering long distance rates while, to a lesser extent, widespread use of bypass technologies on the part of major business users would cut further into long distance revenues. Thus, less money would be left to cross-subsidize local service and the consequences would be inexorable and serious. The present beneficiaries of this pattern of cross-subsidization are not a clutch of relatively insignificant interest groups but the public at large and, while all consumers would receive offsetting benefits through lower long distance rates, the majority of benefits would go to a small number of large users. While cross-subsidization may be economically inefficient, it continues at the same time to be politically attractive. Given the unwillingness of many governments and regulators to tamper with the present system, any significant reduction in cross-subsidization would cause federal-provincial conflict. As well, it would pose real difficulties for the major telephone companies, who may not be equally willing to sacrifice cross-subsidization and, in particular, it would undermine the existence of Telecom Canada as presently constituted. Nevertheless, there are possible options available to deal with these matters. For example, some form of targeted subsidy, whether administered by the telephone companies through designated access charges or by government as part of tax or other programs in support of low-income earners, might be possible. As well, the present organizational structure of Telecom Canada need not be viewed as sacrosanct.

The Process of Rate Restructuring

The process of rate restructuring is almost as important as the results which are likely to be achieved. On the one hand, the timing of any rate restructuring is directly related to perceptions of the threat and reality of bypass, the immediacy of increased competition in the long-haul arena, and the overall benefits for the economy. On the other hand, there is the relationship between rate restructuring, increased competition, and attendant changes in telephone pricing. There are several options available. Increased competition first, followed by rate restructuring later, would situate the process of change more directly within the context of market decision-making and would not be so easily controlled by governments and regulators. Rate restructuring first prior to increased competition would situate the process more in the hands of policy-makers and regulators and would probably make for a slower and more gradual pace of change. Obviously, the telcos and "the Competition" have different views as to how this process should be undertaken. As well, governments and regulators across the country also disagree about whether rate restructuring is really necessary and how it should be achieved. In point of fact, however, these differences of opinion over the process of rate restructuring may be largely academic because, at the federal level at least, both matters are now on the table and, because of the common forces driving the two of them, they will probably have to be confronted more or less simultaneously.

Local-Measured-Service as an Alternative to Flat-Rate Pricing

The matter of rate restructuring has come to be associated – in the public mind at least – with the possible introduction of local-measured service as an alternative to the flat-rate, system-wide pricing presently followed across all jurisdictions in Canada. LMS should be recognized, however, as only one of a variety of pricing alternatives and not directly or necessarily related to rate restructuring. LMS has a number of points in its favour as a pricing reform and has the further attraction that its assumptions and operative principles accord well with the evolving North American ideological environment. It does, however, come directly into conflict with the telecommunications users – both business and residential – and their perceived "customary right" to unlimited local service calling at a flat monthly rate. It is not revealing any secrets to say that the telcos face a major political problem if they as a group – or any one of them individually – decide to proceed with an LMS proposal. LMS certainly has its warts even for the telcos, in particular its administrative costs and impact on customer relations, but it also has its advantages, not the least of which may be that it could provide a private sector and self-regulating solution to the problems of maintaining social objectives like universal service. At the same time, any serious move towards LMS will necessarily entail a redefinition of the traditional concept of universality and a clearer specification of what social and national objectives the Canadian telecommunications system should serve.

Options for the Future: Reconstructing the Telecommunications Sector and Its Regulatory System

It is with particular trepidation that we approach this final problem of how the existing telecommunications sector in Canada and the pattern of policy and regulation which has evolved over the years might come to be reconstructed. From a pattern of relatively depoliticized relations prior to the mid-1970s, the Canadian telecommunications sector has become entangled in a "government embrace" both through regulation and increasingly as part of industrial policy. At the same time, the sector continues to be buffeted by change as a result of technological advance and pressures for competition which challenges the existing regulatory system and the need for more broadly based industrial restructuring. There are several fundamental matters which underlie future developments:

> First of all, as a consequence of bypass and the erosion of boundaries, the strategic role of the telecommunications sector within the broader "information business" will have to be clarified.
>
> Second, the status of alternative providers of telecommunications goods and services such as satellites and cable needs to be determined.
>
> Third, as a result of changes in costing, pricing and cross-subsidization practices, the future of Telecom Canada as an organizational entity may well have to be assessed.
>
> Fourth, with increasing contention over the appropriateness of regulation as a governing instrument, consideration must also be given to the future role of regulatory agencies like the CRTC in the telecommunications field.

Reconstructing the telecommunications sector and its regulatory system is not a short-term undertaking but rather must evolve over the long-term and engage the attention of both energies of government and the private sector.

The Future Role of the Telecommunications Sector within the "Information Business"

This concern has been central to our study from the very beginning. "Bypass" poses both a potential and actual problem for the telecommunications carriers at the same time that "boundaries" between industries and markets within the "information business" are eroding. There is no reason to believe that the confusion and uncertainty surrounding the role of the telecommunications sector within the "information business" is abating and much evidence to suggest that this will continue into the next decade. Bypass is presently a threat as well as a reality, particularly with regard to long-haul transmission, but it is probably not as acute a problem in Canada as it is in the United States. Likewise, boundaries are eroding as the traditional telecommunications carriers find themselves competing in new and existing markets for goods and services and among themselves as well as with a variety of new entrants and other well-established players. There are no real solutions to the problem of bypass and boundaries and, only over time, will it become clear what configuration of players and interests and what new rules of the game will emerge. Perhaps the major casualty in this process, however, will be the present structure of the telecommunications sector and its regulatory system as it struggles, at both the federal and provincial levels, to determine the appropriate role of regulation within an increasingly competitive environment. As well, the various firms which comprise the telecommunications sector will come under similar pressure to reassess their roles and operating characteristics.

Satellites and Cable as Alternative Telecommunications Providers

Satellites and cable are now emerging as alternative telecommunications providers in their own right and this form of competition – in addition to the internal competition among telecommunications carriers themselves – will have to be recognized more explicitly. Telesat Canada presently operates as the monopoly provider of satellite transmission services and as a member of Telecom Canada but, with liberalization of access rules and greater competition in long-haul transmission, there are new possibilities opening up for Telesat Canada. In particular, there is the possibility that Telesat Canada could be "spun off" from Telecom Canada so as to operate as a carrier in its own right, that it might be combined in some fashion with Teleglobe Canada to constitute a new national and international carrier, and also that a competitive satellite business might be opened to future competition. Likewise, the future of the cable industry in Canada is also in question. Depending upon whether cable companies begin to move seriously into the provision of non-broadcast services, there will be increasing pressure for cable to be treated as a common carrier and subjected to the same kind of regulation which the telcos presently face. As important bypass technologies, both the satellite business and the cable industry are likely to see their roles as alternative telecommunications providers significantly altered in the years to come.

The Future of Telecom Canada as an Organization

Telecom Canada – as the consortium of major telephone companies which presently provides long distance service – is under increasing pressure both from within and from without. Not only is technological change and increased competition acting as a source of disequilibrium within the organization, generating new tensions and differences of interest among its members, but it is also the case that the longstanding pattern of cross-subsidization upon which Telecom Canada has historically been based is being challenged. Possible scenarios for the future of Telecom Canada range from outright collapse, through some variations on the status quo, to a more radical restructuring of the organization along different lines. Neither the first scenario which would see Telecom Canada overwhelmed by irreconcilable differences and the industry left with no national organization nor the second scenario which assumes that the destructive potential of increased competition is exaggerated and that no fundamental structural changes are required would seem to accord with the realities of the present situation. The third scenario, involving transformation of Telecom Canada into a new structure of one sort or another, seems quite possible. One particular line of development would see a restructuring by "investiture" – quite opposite to the "divestiture" pursued in the United States – whereby a new national long distance carrier along the lines of AT&T Longlines would emerge to take over from the more informal structure which Telecom Canada represents. A different line of development, and one which would constitute a more radical restructuring, would see the federally regulated telephone companies going it alone as one long-haul carrier and the provincially-regulated carriers organizing themselves into a competitive long-haul carrier – and one which ironically would have a significant community of interest with CNCP Telecommunications. Whatever the precise details, there would seem to be considerable likelihood of significant restructuring of the telecommunications sector as a result of increased competition.

The Changing Role of Regulation vis-a-vis Monopoly and Competition

In addition to any changes which might occur in the pattern of policy and regulation as a result of jurisdictional and regulatory reform, there is also a rethinking going on as to the appropriate role of regulation vis-a-vis monopoly and competition. The CRTC is presently examining the "regulatory environment" which it is likely to face over the next decade in the telecommunications field and provincial policy-makers and regulators are looking seriously at whether they must engage more and more in the kind of "regulated competition" which their federal counterpart has become involved in. At the federal level, there is some likelihood that the CRTC will decide to take a lighter hand towards regulation of the telecommunications sector in the years to come and this will probably be reinforced by the attitude of the new Progressive Conservative government which is likely to give strong support to increased competition. At the provincial level, the prospects are less clear-cut in that, while the provincial regulators for the most part have neither the capacity nor the disposition to engage in greater regulation, they may be forced either to do so as a result of the spillover of increased competition into their jurisdictions or more likely to simply acquiesce in such an inevitability. One suggested reform which would focus attention squarely on the proper role of regulation vis-a-vis monopoly and competition which would be equally useful at both levels of government would be to clarify the regulatory agency's power of "forbearance" in the exercise of its authority. In this way, it might be possible to improve the use of regulation within the telecommunications sector and to rework that old adage that "To Err is Human, but to Forbear is Divine".

Notes

1. On the concept and its application to Canada, see Shirley Serafini and Michel Andrieu, *The Information Revolution and Its Implications for Canada* (Ottawa: Minister of Supply and Services, 1980).

2. These definitions of politics are standard ones. See David Easton, *The Political System* (New York: Knopf, 1953), and Harold Lasswell, *Politics, Who Gets What, When, How* (New York: McGraw-Hill, 1936).

3. See Department of Communications, *Instant World* (Ottawa: 1971); and H.E. English (ed), *Telecommunications for Canada* (Toronto: Metheun, 1973).

4. Consultative Committee on the Implications of Telecommunications for Canadian Sovereignty, *Telecommunications and Canada* (Ottawa: 1979).

5. Economic Council of Canada, *Reforming Regulation* (Ottawa, 1981), especially Chapter 5.

6. This is an amalgamation of all the elements of Porat's "selection rule". For a more complete treatment, see Marc U. Porat, "Communications Policy in an Information Society," in Glen O. Robinson, *Communications for Tomorrow: Policy Perspectives for the 1980s* (New York: Praeger, 1978), pp. 19-25.

7. *Ibid.*, p. 12-14.

8. Theodore Vail was one of the early presidents of AT&T in the United States. For a compendium of his views, see Theodore N. Vail, *Views on Public Questions* (privately printed, 1917).

9. Throughout the paper, we have included particularly expressive quotations drawn from our interviews. No attributions have been made so as to protect the guilty and incriminate the innocent.

10. Hudson Janisch and Manley Irwin, "Information Technology and Public Policy: Regulatory Implications for Canada", *Osgoode Hall Law Journal*, 20 (1983), p. 611.

11. On technological developments in telecommunications, see Walter S. Baer, "Telecommunications Technology in the 1980s" in Glen O. Robinson, *Communications for Tomorrow: Policy Perspectives for the 1980s* (New York: Praeger, 1978), pp. 61-123; and Manley R. Irwin, *Technology and Telecommunication: A Policy Perspective for the 80's* (Ottawa: Economic Council of Canada Working Paper No. 22, 1981).

12. The "convergence of computer and communications technologies" is discussed in Walter S. Baer, *op. cit.*

13. See Manley Irwin, *op. cit.*; for a more recent but similar assessment by the same author, see his Submission on Behalf of the Director of Investigation under the Combines Investigation Act to the CRTC on Interexchange Competition and Related Issues (mimeo, 1984).

14. Richard Schultz, "Regulation as Maginot Line: Confronting the Technological Revolution in Telecommunications", *Canadian Public Administration* 16 (Summer, 1983), p. 216.

15. For a somewhat pessimistic analyses, see Oswald P. Ganley and Gladys D. Ganley, *To Inform or to Control: The New Telecommunications Network* (Toronto: McGraw Hill, 1982). For a more thoughtful and optimistic view of these concerns, see Ithiel de Sola Pool, *Technologies of Freedom* (Cambridge, Mass.: Harvard, 1983).

16. On the character of the telephone industry in Canada, see Robert Collins, *A Voice From Afar: The History of Telecommunications in Canada* (Toronto: McGraw-Hill, 1979); also, on the first President of the Bell Telephone Company and his era, see R.C. Fetherstonhaugh, *Charles Fleetwood Sise, 1834-1918* (Montreal: Gazette, 1944).

17. With regard to the general argument, see Herschel Hardin, *A Nation Unaware: The Canadian Economic Culture* (Vancouver: Douglas, 1974).

18. On the case for increased competition, Alfred E. Kahn, The Economics of Regulation (New York: Wiley, 1970); and the relationship between competition and regulation, see Roger G. Noll, "The Future of Telecommunications Regulation" in Eli M. Noam, editor, *Telecommunications Regulation Today*

and Tomorrow (New York: Harcourt Brace, 1983), pp. 41-71.

19. For a treatment of the debate with reference to Canada, see Donald Armstrong, *Competition versus Monopoly* (Vancouver: Fraser Institute, 1982); and for a somewhat different European perspective, see Hans Bergendorff, T. Larsson and R. Naslund, "The Monopoly vs. Competition Debate", *Telecommunications Policy*, 7 (December, 1983), pp. 297-308.

20. Gerald W. Brock, *The Telecommunications Industry: The Dynamics of Market Structure* (Cambridge, Mass.: Harvard University Press, 1981) and Eli M. Noam, editor, *Telecommunications Regulation Today and Tomorrow* (New York: Harcourt Brace, 1983), pp. xv-xxiii.

21. For recent assessments along these lines, see Henry Gellar, "Can Government Maintain the Status Quo in Terms of Regulation in the Communications Sector?", *Canadian Regulatory Reporter*, 4 (1983), pp. 5-41-43; and Allan Pearce, Evidence Presented to Board of Commissioners of Public Utilities of NB, April 1984.

22. For a detailed treatment of the Canadian pattern prior to 1976, see Peter S. Grant, *Competition Policy and the Canadian Telecommunications Carriers: An introduction* (Toronto, 1976), mimeographed.

23. On the preeiminent role of the CRTC guiding the introduction of competition, see Economic Council, *Reforming Regulation*, Chapter 5.

24. On the concept of "regulated competition", see Anthony Oettinger with Carol L. Weinhaus, *Players, States and Politics of Regulated Competition in the Communications Infrastructure of the Information Industry* (Cambridge, Mass.: Harvard University Program on Information Resources Policy, 1981).

25. Hudson Janisch, "Competition: An American Export – Canadian Import?", *Canadian Regulatory Reporter*, 4 (1983), pp. 5-33.

26. Porat, "Communications Policy in an Information Society", p. 25.

27. Janisch and Irwin, "Information Technology and Public Policy. . . .", pp. 626-33; and Schultz, "Regulation as Maginot Line. . . .", pp. 214-17.

28. The "capture" hypothesis is a long-standing one and dates back to Marver Bernstein, *Regulating Business by Independent Commission* (Princeton: Princeton University Press, 1955); for a rather skeptical view of its empirical validity, see Paul Sabatier, "Social Movements and Regulatory Agencies: Toward a More Adequate – and Less Pessimistic – Theory of Clientele Change", *Policy Sciences*, Vol. 6 (1975), pp. 301-42.

29. The "producer protection" argument is based upon George Stigler's, "The Theory of Economic Regulation", *Bell Journal of Economics and Management Science*, Vol. 2, No. 1, (1971). Also see William Jordan, "Producer Protection, Prior Market Structure and the Effects of Government Regulation", *Journal of Law and Economics* 15 (April 1972), pp. 151-76.

30. See R.A. Posner, "Taxation by Regulation", *Bell Journal of Economics and Management Science*, Vol. 2, No. 1 (1971), pp. 22-50; and for a recent Canadian treatment, see W.T. Stanbury and George Lermer, "Regulation and the Redistribution of Income and Wealth", *Canadian Public Administration* (Fall, 1983), pp. 378-401.

31. On the way in which regulatory and political processes can be used for "strategic" purposes in pursuit of their economic objectives, see Bruce Owen and Ronald Brautigan, *The Regulation Game* (Cambridge, Mass.: Balinger, 1978).

32. Pressure from well-organized big business user groups is portrayed as the major factor underlying the US move to telecommunications deregulation in Dan Schiller, *Telematics and Government* (Norwood, NJ: Ablex, 1982).

33. On the difficulties of organizing large and amorphous groups like residential consumers, see Mancur Olson, *The Logic of Collective Action* (New York: Schocken, 1968).

34. The pervasive impact of divided jurisdiction and the problems which it raises for telecommunications and broadcast regulation are discussed in the present authors' *Conflict Over Communications Policy: A Study in Federal*

Provincial Relations and Public Policy (Montreal: C.D. Howe Institute, 1980), especially Chapter 4.

35. On the way in which federalism infuses public policy in Canada, see A.E. Safarian, *Canadian Federalism and Economic Integration* (Ottawa, 1974).

36. The phrase comes originally from Nora and Minc and is used most appropriately in Richard Schultz, "Partners in a Game Without Masters: Reconstructing the Telecommunications Regulatory System", in R.E. Buchan, *et. al.*, *Telecommunications Regulation and the Constitution* (Montreal: IRPP, 1982), p. 43.

37. The classic discussion of "bureaucratic politics" as distinct from rational planning or governmental process models of public policy-making is Graham Allison, *Essence of Decision* (Boston: Little, Brown, 1971).

38. For a case study along these lines but in the area of transportation policy and regulation, see Richard Schultz, *Federalism, Bureaucracy and Public Policy: The Politics of Highway Transport Regulation* (Montreal: McGill-Queen's, 1980).

39. See Hudson Janisch, "Policy Making in Regulation: Towards a New Definition of the Status of Independent Agencies in Canada", *Osgoode Hall Law Journal*, Vol. 17 1979), pp. 46-106.

40. On the pervasive ideological underpinnings of telecommunications issues, see Theodore J. Lowi, "The Political Impact of Information Technology", in Tom Forester (ed.), *The Microelectronics Revolution* (Cambridge, Mass.: MIT, 1981), pp. 453-72.

41. See Marc Porat, *The Information Economy: Definition and Measurement* (Washington: US Department of Commerce, 1977).

42. Canada Consulting Group, *The Information Economy: A Report for the Ontario Ministry of Transportation and Communications* (May, 1984).

43. For a good overview of the approach, see John F. McLaughlin with Anne E. Birinyi, *Mapping the Information*

Business (Cambridge, Mass.: Harvard University Program on Information Resources, 1980).

44. We use the term "telecommunications sector" in the traditional sense of the term as comprising the major telephone companies, their equipment suppliers, and the specialized common carriers even though it is problematic whether or not the "telecommunications sector" can really be said to constitute a clearly defined, bounded sector within the "information business".

45. For an up-to-date treatment of the telecommunications sector in Canada, see Department of Communications, *Canadian Telecommunications: An Overview of the Canadian Telecommunications Carriage Industry* (Ottawa, 1983).

46. On Telecom Canada as an example of horizontal integration, see E.B. Ogle, *Long Distance-Please* (Toronto: Collins, 1979); also Telecom Canada, *The Information Movers* (Ottawa, 1983).

47. On vertical integration within the industry, see Restructive Trade Practices Commission, *Telecommunications in Canada: Phase III Vertical Integration* (Ottawa, 1983); also Blaise Downey, "Should Bell Canada Control Northern Telecom?", *In Search*, 5 (Fall, 1978), pp. 22-26.

48. On CNCP Telecommunications and its position vis-a-vis the major telephone companies, see Joseph S. Schmidt and Ruth M. Corbin, "Telecommunications in Canada: The Regulatory Crisis", *Telecommunications Policy* (September, 1983), pp. 215-27.

49. Telesat Canada is a "mixed corporation" owned 50 percent by the federal government, 25 percent by Bell Canada Enterprises, 16 percent by other Telecom Canada companies and 90 percent by the remaining common carriers. On the role of Telesat Canada, see G. Bruce Doern and James Brothers, "Telesat Canada" in Allan Tupper and G. Bruce Doern (eds.), *Public Corporations and Public Policy in Canada* (Montreal: Institute for Research on Public Policy, 1983), pp. 221-50.

50. For a good treatment of the telecommunications equipment industry, see Department of Communications, *The Supply*

of Communications Equipment in Canada (Ottawa, 1981); also, Department of Communications, The Supply of Communications Equipment in Canada (Ottawa, 1985).

51. Northern Telecom now generates about 60 percent of its total revenues from export sales and, together, Northern Telecom and Mitel presently control about 25 percent of the US market for telecommunications switching equipment. Northern Telecom, *Annual Report for 1983*, p. 4; also Jonathan Chevreau, "Firms Thrive on PBX Sales in the US", *Globe and Mail*, April 29, 1983, p. B15; and Judy Steed, "Canada's Grant Among the Grants: Northern Telecom is Out to Produce the Ideal World System", *Globe and Mail*, February 19, 1983, p. 10.

52. On the emergence of the interconnect industry, see Wayne Lilley, Getting a Line on Interconnect," *Canadian Business*, 54 (March 1981), pp. 98-108.

53. For a more recent assessment of the industry, see Northern Business Intelligence Ltd., *Canadian Interconnect Market* (Toronto, 1983); also, Johnathan Chevreau, "A Transition Period is Looming for Interconnects, NBI Predicts", *Globe and Mail*, June 15, 1984, p. B13.

54. On the Canadian cable industry and its relations with the telecommunications companies, see Maggy Laws, "Will Cable Compete with the Telcos?", *In Search*, 6 (Winter 1979), pp. 18- 22; also Robert Streklasa, "Cable TV Tunes into High Tech Wizardry", *Financial Post*, July 24, 1982, p. 5; and Grant Buckler, "Cable Seen as a Data Medium", *Computing Canada*, October 21, 1982, p. 42.

55. See Janay Collins and Barry R. Litman, "Regulation of the Canadian Cable Industry: A Comparative Analysis", *Telecommunications Policy*, 8 (June 1984), pp. 93-106.

56. On the growth of the computer industry in Canada, see Computer Communications Secretariat, *The Growth of Computer Communications in Canada* (Ottawa, 1978); and Department of Communications, *The Supply of Computer Communications Equipment in Canada* (Ottawa, 1982).

57. See Jennifer Gruss, "Outsiders Still Dominate Canadian Scene", *Financial Post*, February 19, 1983, p. S12; and Tyrus

Reiman, "Trying to Increase the Demand for Made In Canada Products", *Financial Post*, November 5, 1983, p. S9.

58. See Jonathan Chevreau, "Computer, Office Equipment Higher Trade Deficit", *Globe and Mail*, February 11, 1983, p. B5.

59. On the federal Department of Communications and its role, see Department of Communications, *Annual Report, 1982-83* (Ottawa, 1983); on the CRTC and telecommunications regulation, see Christopher Johnston, *The Canadian Radio-Television and Telecommunications Commission* (Ottawa: Law Reform Commision, 1981).

60. See Director of Investigation and Research under the Combines Investigation Act, *Annual Report, 1982-83* (Ottawa, 1983).

61. For a treatment of the Nova Scotia and Saskatchewan experience in addition to the CRTC, see Leonard Waverman, *The Process of Telecommunications Regulation in Canada* (Ottawa: Economic Council of Canada Working Paper No. 28, 1982).

62. A preliminary but generally skeptical assessment of the importance of public versus private ownership in Hudson Janisch, "Telecommunications Ownership and Regulation in Canada: Compatability or Confusion?", paper prepared for the 12th Annual Telecommunications Policy Research Conference, Airlie, Va., April 23-26, 1984.

63. For a treatment of the pre-divestiture situation in the United States, see US House of Representatives, Committee on Energy and Resources, Sub-Committee on Telecommunications, *Telecommunications in Transition: States of Competition in the Telecommunications Industry* (Washington, 1981). On the AT&T settlement and its impact, see Paul V. MacAvoy and Kenneth Robinson, "Winning by Losing: The AT&T Divestiture and Its Impact on Telecommunications", *Yale Journal on Regulation*, 1 (1983), pp. 1-42.

64. On the British situation, see M.E. Beesley, *Liberalization of the Use of the British Telecommunications Network* (London: HMSO, 1981); also Jeffrey Simpson, "British Telecom

Moves Face Strong Opposition", *Globe and Mail*, October 8, 1983, p. B19.

65. The "grand strategy" was first outlined, of course, in S. Nora and A. Minc, *L'Informatisation de la Société* (Paris, 1978). See, also, Rex Malik, "The French Keep to Their Grand Strategy", *Intermedia*, 11 (May, 1983), pp. 12-14; and David Marsh, "French Information Technology Chastized", *Globe and Mail*, April 29, 1983, p. B20.

66. On the Japanese situation, see Rex Malik, "The Search for a Fifth Generation Computer", *Intermedia* 10 (May, 1982), pp. 17-23; Research Institute of Telecommunications and Economics, Tokyo, "A Vision of Telecommunications", *Intermedia*, 11 (January 1983), pp. 26-33.

67. On Canada's role in the world telecommunications market, see "Telecommunications: The Global Battle", *Business Week*, October 24, 1983, pp. 144-48.

68. On the difficulties of entering the Japanese market, see Andrew Toller, "US Seeks Solution to Japanese Threat", *Globe and Mail*, May 27, 1983, p. B14; and "Japan Opens Doors to Sales of Telecommunications Gear", *Globe and Mail*, January 31, 1984, p. B13.

69. Generally on this point, see Joan Spero, "Information and Telecommunications as a Trade Issue", *Intermedia* 10 (March, 1982), pp. 9-11; also, G. Ara, A. Alberta, M.A. Crener and J.-P. Sallenave, *The World Telecommunications Market: Characteristics, Structures and Trends* (Ottawa: DOC/University of Ottawa, 1983).

70. On the importance of international organizations in the communications field, see George A. Codding Jr., "The ITU in the 1980s", *Intermedia*, 8 (September, 1980), pp. 12-7; and de Montigy Marchand, "The Impact of Information Technology on International Relations", *Intermedia*, (November, 1981), pp. 12-5.

71. On the reorganization proposal, see Bell Canada, Notices of Special Meetings of Shareholders, Information Circular and Notice of Motion, June 25, 1982.

72. The "slippery slope" analogy, at least in the Canadian context, goes back to the testimony of Eugene Rostow at the

time of the system interconnection hearings and became the standard position adopted by Bell Canada in response to the threat of increased competition. See Bell Canada, Submission to the CRTC or CNCP Application for Interconnection, May 29, 1978.

73. Bell Canada officials argue that they are not against "bypass" per se and that the improvements made to their own network such as the increasing use of fibre optics is itself an example of "internal bypass". And it is precisely because of these improvements to the network that "external bypass" is not yet extensive nor is it as likely to become as extensive as in the United States.

74. For its most elaborate treatment of the case for "rate rebalancing", see Bell Canada, memorandum of Evidence on Interexchange Competition and Related Issues, April, 1984, Section 2.

75. Company officials, and especially the current President of Bell Canada Enterprises, have made suggestions about a possible shifting of regulatory control from the federal to the provincial governments for several years. For example, see A.J. de Grandpre, Notes for an Address to the Annual General Meeting, April 17, 1980, pp. 11-13.

76. "Bell Canada favours a situation where policy is made by Parliament, and applied by the CRTC according to statute. The government policy-making role should be restricted to introducing legislation, and, through the right of the Governor in Council, to amending CRTC decisions. The CRTC should have the right to recommend policy but not to make it." Bell Canada, Submission to the Minister of Communications in Respect of Bill C-43 – An Act Respecting Telecommunications in Canada, September 30, 1977, p. 2.

77. BC Tel has, in fact, adopted the "information business" as the frame of reference for several of its recent public statements. See BC Tel, Comments on the Telecommunications Policy Review, May 14, 1984.

78. The company has used the case of cross-border resellers like Cam-Net and Longnet which offer long-distance calls to the United States at a substantial discount as the most dramatic example of "bypass". See BC Tel, Memorandum of

Evidence to the CRTC on Interexchange Competition and Related Issues, April 30, 1984, esp. Appendix 5.

79. *Ibid.*, Chapter 2. With regard to local-measured-service, it should be noted that its parent corporation has had considerable experience with such pricing systems, most notably in Illinois.

80. For its position on jurisdictional and regulatory issues, see BC Tel, Comments on the Telecommunications Policy Review, May 14, 1984, Section 9.

81. On the rationale for government ownership by one of its strongest critics, see James Mavor, *Government Telephones* (Toronto: Maclean, 1916); for a continuing defence of government ownership by the Chairman of MTS, Saul M. Miller, *Telecommunications in Manitoba: Change and Challenge* (May, 1983).

82. On the Saskatchewan case in particular, see Leonard Waverman, *The Process of Telecommunications Regulation in Canada* (Ottawa: Economic Council of Canada Working Paper No. 28, 1981), especially pp. 68-80; also Saskatchewan Telecommunications, *Annual Report 1983* (Regina, 1984).

83. See Manitoba Telephone System, Submission to the Federal Telecommunications Policy Review, May, 1984. It might be noted that neither AGT nor Sasktel chose even to make a submission, although in the latter case the Saskatchewan government did express their own and the company's strong opposition to increased competition.

84. AGT's more positive approach to "rate rebalancing" can be noted in Joe Szaskiewicz, "Comments on Competition in the Provision of Communications Services", in T. McPhail and S. Hamilton (ed), *Communications in the 1980's* (Calgary: University of Calgary, 1984), pp. 40-45.

85. Sasktel and government officials are on record as strongly opposing broader interconnection and, as of 1980, the *Saskatchewan Telecommunications Act* was amended to prohibit the attachment of any equipment to Sasktel lines without permission, although this has recently been liberalized somewhat. For a statement of Sasktel's position by its current President, see Frank Degenstein, *Telecom-*

munications, Regulation and Competition: An Industry View (Montreal: McGill University Centre for the Study of Regulation Industries, 1981)

86. Following the 1981 CRTC decision on TCTS rates which requested that Bell Canada seek to renegotiate certain features of the Connecting Agreement, Sasktel flatly refused to cooperate unless ordered to do so by its provincial regulator. See *Saskatchewan Holds up Attempts to Renegotiate TCTS Rates*, Communications Week 2 (June 28, 1982), p. 1. Likewise, AGT fights CNCP's attempt to gain interconnection through application to the CRTC, claiming both that the CRTC does not have jurisdiction and that, even if it did, government ownership implies inter-jurisdictional immunity.

87. On the Nova Scotia situation in particular, see Waverman, *The Process of Telecommunications Regulation in Canada*, especially pp. 57-68; also, MT&T, *Annual Report 1983* (Halifax, 1984). Newfoundland Tel is the only company where BCE ownership is more than 50 percent.

88. For an early statement of their concern, see MT&T, NB Tel, Newfoundland Tel and Island Tel, Submission to the CRTC on System Interconnection, May 26, 1978.

89. See MT&T, NB Tel, Newfoundland Tel and Island Tel, Submission to the Federal Telecommunications Policy Review, May 1984, esp. sections 3 and 4 and p. 10.

90. On the Trans-Canada Telephone System and its operation, see Bell Canada, Memorandum of Evidence Filed with the CRTC, January 1980.

91. The only study of the RSP – and one which continues for the most part to be valid – is the study commissioned by the CRTC as part of its 1979-81 proceedings on TCTS rates and Telesat practices. See Peat, Marwick and Partners, *A Review of Revenue Settlement Practices and Procedures Employed by Members of TCTS* (Toronto: 1979-80, 3 volumes.

92. Following the collapse of the Canadian Telecommunications Carriers Association in 1981 as a result of its inability to operate effectively on behalf of the telephone companies as well as competitors like CNCP Telecommunications,

Telecom Canada has cautiously taken on some of the responsibility for representing the industry through such mechanisms as its Telecom Canada Forum.

93. The reference to Telecom Canada as an example of "private sector cooperative federalism" is from W.R. Lederman, "Telecommunications and the Federal Constitution of Canada", in H.E. English, *op. cit.*, especially pp. 385-87; the "cartel" model is widely used by consumer groups and competitors like CNCP; and the "bumblebee" analogy comes from one of our more fanciful interviews.

94. For Telecom Canada's view of competition and regulation, see J.A. Harvey, "Are We Over-Regulated?", Speech to the Canadian Industrial Communications Assembly, September 14, 1983.

95. On jurisdictional and regulatory reform, see J.A. Harvey, "Canada's Complex Regulatory Environment: How It Can Be Streamlined", Speech to the Canadian Industrial Communications Assembly, December 8, 1982.

96. See CRTC Telecom Decision 77-10, August 24, 1977 as varied by Order-in-Council PC 1977-3152, November 3, 1977. For a more extensive justification of the Telesat/TCTS merger, see Hon. Jeanne Sauve, "Satellites are for People", notes for an address to the Royal Society of Canada, November 29, 1977, pp. 8-11.

97. On the role of Telesat within Telecom Canada, see Telecom Canada, *The Information Movers*, pp. 2; also Janet Yale, *Telesat Canada's membership in the Trans Canada Telephone System: A Critique*, (Mimeo, n.d.)

98. For the views of its President, see Eldon Thompson, "Comments on Competition in the Provision of Communications Services", in T. McPhail and S. Hamilton (ed), *Communications in the 1980's: Major Issues*, pp. 28-32.

99. Microtel has recently emerged as the manufacturing and research arm of BC Tel; Novatel is a joint venture between AGT and Nova Corporation formed to manufacture cellular mobile equipment; and Spar Aerospace is virtually the monopoly supplier of certain satellite communications equipment for Telesat Canada.

100. See Northern Telecom Ltd., Submission to the Restrictive Trade Practices Commission, July 17, 1981; and Bell Canada, Argument Submitted to the Restrictive Trade Practices Commission, July 17, 1981, 2 volumes.

101. For a good treatment of Northern Telecom's current strategy by its President, see Walter F. Light, "Building a Winner", Speech to the Annual Meeting of Shareholders, Toronto, Ontario, April 29, 1982.

102. On the problems of the independent telephone industry in Ontario, see Ontario Ministry of Transportation and Communications, *A Policy and Legislation Review of the Independent Telephone Industry in Ontario* (Toronto, 1980).

103. For the most recent attempt to solve this problem, see *The Milvain Committee Report* (Edmonton, 1984) which recommended that a new company be formed "to take over the entire telephone system in Alberta so designed as to give fair, equitable and efficient service to all users and in which members of the public shall have the right to acquire shares".

104. While there does not appear to be any written statement on the rules of membership in Telecom Canada, it appears that in general the major telephone company in each province is the member and that other telcos will deal with that member insofar as Telecom Canada issues are involved.

105. Concern has recently been expressed that, when Teleglobe Canada came under the new Canada Development Investment Corporation, its substantial profits would be syphoned off and there would be attendant pressure for Teleglobe to move into new services like Canada – US as well as Canada – overseas. See Dalfen Associates Consulting, Inc., *A Study of the Convergence of Domestic and International Telecommunications Service* (Ottawa, 1983).

106. On CNCP Telecommunications as a partnership, see CRTC Telecom Decision 81-2, January 14, 1981.

107. This competitive rivalry, as evidenced by the succession of private line and data services offered by CNCP and the telephone companies, is effectively portrayed in the evidence presented by its President to the CRTC

proceedings on long distance competition. See CNCP Telecommunications, Evidence of J.G. Sutherland, April 9, 1984, especially Section 3.

108. See CNCP, Submission to the CRTC on Interconnection with Bell Canada, May, 1978, p. 14.

109. "Witness, for example, the recently developed Econovoice service of CNCP, which, through innovation technology, permitted cost savings of up to 32 percent on private line communications. Only customers in Ontario, Quebec and British Columbia were permitted the benefits of this innovative offering, by virtue of the CRTC's limited exercise of jurisdiction. . . . TCTS itself unwittingly gave testimony to the case regarding regulatory fragmentation, by introducing a service competitive to Econovoice, *only in the provinces of Ontario, Quebec and British Columbia*. That is, although TCTS could have applied to its regulators to offer a new reduced-rate service everywhere and instantly in the country, they were able to take advantage of the uneven regulatory structure by applying to cut prices only where CNCP's competitive Econovoice had been authorized." Schmidt and Corbin, "Telecommunications in Canada: The Regulatory Crisis", p. 222.

110. The theme that "monopoly, not competition, is the issue" is the key to CNCP's recent submission to the federal Department of Communications' telecommunications policy review and the basis for the arguments which follow. See CNCP Telecommunications, *Telecommunications Policy: Riding the Waves of Change* (May, 1984).

111. The CNCP application for long distance competition proposes a 10 to 20 percent price reduction, if approved, but, in its statements and evidence, the company has not really focussed on the "rate rebalancing" issue raised by Bell Canada, prefering instead to concentrate on gaining access to the network as a first step. See CNCP Telecommunications, Application for Interchange of Traffic with Public Switched Networks, filed October 25, 1983.

112. See CNCP Telecommunications, *The Crisis in Canadian Telecommunications Policy and Regulation* (Toronto, 1982).

113. See, for example, the extensive list of arguments presented by both foreign and domestic firms at the first phase of the

RTPC inquiry. See Restrictive Trade Practices Commission, *Telecommunications in Canada: Phase I Interconnection* (Ottawa, 1981), pp. 232-71.

114. See Mitel Corporation, Submission to the Telecommunications Policy Review, May 14, 1984.

115. See, in particular, Ontario Hospital Association, *et. al.*, Final Argument to the CRTC on Terminal Attachment, January 18, 1982; also Canadian Telecommunications Group (CTG), Final Argument to the CRTC on Terminal Attachment, January 18, 1982.

116. See, for example, Association of Competetive Telecommunications Suppliers, Submission to the CRTC Proceeding on Enhanced Services, February 6, 1984.

117. On the contention between the cable companies and the telephone companies, see Robert Babe, *Cable Television and Telecommunications in Canada* (East Lansing: Michigan State University, 1975); also Consultative Committee on the Implications of Telecommunications for Canadian Sovereignty, *Telecommunications and Canada*, Chapter 4.

118. The cable industry has not operated very much within the regulatory process to challenge the telecommunications companies but it does lobby extensively with the federal government. For its views on competition with the telecommunications carriers, see Canadian Cable Television Association, Submission to the CRTC on Bell Reorganization, February 21, 1983.

119. On the emerging competition in this area, see S. Berger and P. Neogi, "The US Department of Justice – American Telephone and Telegraph and International Business Machines Anti-Trust Settlements: Some Canadian Considerations", *Canadian Regulatory Reporter*, 3 (April, 1983), pp. 5-1 to 5-8.

120. As early as the system interconnection case, IBM's position was that it did not accept Bell Canada's view that the public switched network need be treated as a "natural monopoly" and that competition in the use of the network would be beneficial. See IBM, Final Argument, May 12, 1978. This is

the basis for its own and the industry's subsequent positions vis-a-vis the telephone companies.

121. For the original policy statement and the final decision, see Department of Communications, "Cellular Mobile Radio Policy and Call for License Applications", *Canada Gazette*, October 23, 1982, p. 7800; and Department of Communications, News Release, December 14, 1983.

122. See Letter from the Honourable Francis Fox to J.V.R. Cyr, President, Bell Canada, March 13, 1984.

123. See CRTC Telecom Decision 81-13, July 7, 1981, as varied by Order-in-Council P.C. 1981-3456, December 8, 1981.

124. See CRTC Telecom Decision 84-9, February 20, 1984.

125. See Department of Communications, News Release, April 10, 1984.

126. In the Matter of Long-Run Regulation of AT&T's Basic Domestic Interstate Services, FCC Docket No. 83-1147, Comments of American Telephone and Telegraph Company, April 4, 1983.

127. It can be noted that AT&T Communications has now set up marketing and sales operations for its telephone equipment and computer products.

128. As evidence of its interest in these issues, one might note the Royal Bank's sponsorship of a major conference on transborder issues. See George Washington University Center for Telecommunications Studies and McGill University Centre for Study of Regulated Industries, *Policy Issues in the Canadian-American Information Sector* (Montreal, 1984).

129. In terms of representing its membership, CBEMA is only partially concerned with telecommunications matters and often goes together with other groups in presenting its views to the CRTC and other regulatory bodies.

130. See Ontario Hospital Association, *et. al.*, Final Argument to the CRTC on Terminal Attachment, January 18, 1982.

131. For a treatment of the federal government's own telecommunications requirements, see Government Telecommunications Agency, *Annual Review of Telecommunications in the Government of Canada, 1981/82* (Ottawa, 1983), especially pp. 36-63.

132. CBTA has very clear membership requirements. It is open to companies, government departments and institutions which are users of telecommunications services and facilities but not to telecommunciations common carriers, equipment suppliers, or regulators. Its membership is said to be secret because of earlier fears about reprisal but it does claim that 47 of the top 100 companies in Canada are members.

133. See CICA, Comments on CRTC Review of Terminal Attachment Provisions, April 5, 1983; also CICA *et. al.*, Joint Comments on Enhanced Services, February 6, 1984. The joint submission was on behalf of itself and eight other groups including ACTS, CBEMA and the Canadian Bankers Association, among others.

134. For a treatment of the regulatory process from a consumer perspective, see T. Gregory Kane, *Consumers and Regulators: Intervention in the Federal Regulatory Process.* (Montreal: Institute for Research on Public Policy, 1980).

135. The CAC did not participate in the system interconnection case but it has been involved in all the major telecommunications cases since that time. Its support for "unbundling" of rates for the telephone itself vis-a-vis access to the network is an example of how it attempts to balance off the benefits of "innovation and choice for consumers" and the concerns of "ordinary consumers" about higher rates or lower quality service or products. See CAC, Final Argument to the CRTC on Terminal Attachment, January 18, 1982, p. 1 ff.

136. See NAPO, Submission to the CRTC on Terminal Attachment, January 1982.

137. NAPO was the most strongly opposed of all the groups appearing on the Bell reorganization issue. See NAPO, Final Argument to the CRTC on Bell Reorganization, February 21, 1983.

138. On its position, see CFCW, Submission to the CRTC on the Bell Canada Reorganization, February 1, 1983; also, "Union to Fight Bell Deregulation", *Globe and Mail*, October 2, 1984, p. M1.

139. Waverman, *The Process of Telecommunications Regulation in Canada*, p. 213.

140. Schultz, "Partners in a Game Without Masters", p. 43.

141. Schmidt and Corbin, "Telecommunications in Canada: The Regulatory Crisis", p. 218.

142. On the difficulties of dealing with the role of regulatory agencies within a parliamentary system, see Janisch, "Policy-Making in Regulation . . .", p. 46; also Law Reform Commission of Canada, *Independent Administrative Agencies* (Ottawa, 1980), Chapter 3 and 4.

143. For a treatment of its various rules and procedures, see Christopher Johnston, *The Canadian Radio Television and Telecommunications Commission* (Ottawa: Law Reform Commission of Canada, 1981).

144. On the CRTC's consistent acceptance of greater competition see W.T. Stanbury and Fred Thompson, *Regulatory Reform in Canada* (Montreal: IRPP, 1982), Chapter 4.

145. John Lawrence, Regulation 145. . . . and Competition: The Need for Reality Testing", *Canadian Regulatory Reporter*, 2 (1981), pp. 5-2 to 5-6.

146. For perhaps the most explicit statement of the CRTC's concerns as stated by its former Chairman, see John Meisel, "Babies and Bathwater, Or, What Goes Down the Deregulatory Drain?", in Oscar H. Gandy *et. al.*, *Proceedings of the 10th Annual Telecommunications Policy Conference* (Norwood, N.J.: Ablex, 1983), pp. 3-11.

147. On the Vice-Chairman's views of the CRTC and the issues which it is likely to face in the future, see John Lawrence, Notes for a Talk at the Fifth Annual Conference of the Canadian Communications Association, Guelph, Ontario, June 8, 1984.

148. For a treatment of the Department of Communications and its responsibilities, see *The Department of Cummunications: An Overview* (Ottawa, n.d.). It is interesting to note that what was previously called the national Telecommunications Branch has now, because of provincial government sensitivity, been renamed as the Telecommunications Policy Branch.

149. See Department of Communications, *Proposals for a Communications Policy for Canada* (Ottawa, 1973); and Department of Communications, *Communications: Some Federal Proposals* (Ottawa, 1975).

150. Canada, *House of Commons Debates*, January 27, 1977, pp. 2459 ff.

151. For a discussion of the proposed legislation, see Robert J. Buchan, "New Communications Legislation Explained", *In Search*, (Fall, 1977), pp. 16-18.

152. See Bill C-20, An Act Respecting Bell Canada and to amend the CRTC Act, the Broadcasting Act, the Canadian Film Development Corporation Act and the Radio Act, given first reading on February 8, 1984.

153. The "Monopoly/competition seesaw" was the term used by a former Deputy Minister of Communications. See Bernard Ostry, Notes for an Address to the Annual Convention of the Canadian Telecommunications Carriers' Association, June 18, 1979.

154. The telecommunications policy review was initiated late in 1983 and subsequently took on a federal-provincial dimension when the Department and several, but not all, provincial governments agreed to fund a study of the impact of increased competition on cross-subsidization between long distance and local telephone service. See *Canada Gazette*, Notice No. DGTN-001-84, January 9, 1984.

155. See the Honourable Francis Fox statement to the House of Commons standing committee on communications and culture, May 26, 1983, pp. 6-7.

156. Director of Investigation and Research Under the Combines Investigation Act, *The Effects of Vertical Integration on the*

Telecommunications Equipment Market in Canada (Ottawa, 1976), p. 11.

157. See Restrictive Trade Practices Commission, *Telecommunications in Canada* (Ottawa, 1981-83), in 3 parts.

158. *Ibid.*, Part III, pp. 199 ff.

159. For a review of the Director's interventions before federal and provincial regulatory bodies, see Director of Investigation and Research Under the Combines Investigation Act, *Annual Report, 1982-83*, pp. 58-84.

160. See Director of Investigation and Research under the Combines Investigation Act, Comments on Enhanced Services, no date.

161. For an overall assessment, see W.T. Stanbury and Fred Thompson, *Regulatory Reform in Canada* (Montreal: Institute for Research on Public Policy, 1982).

162. See Economic Council of Canada, *Reforming Regulation* (Ottawa, 1981), Chapter 5; and Special Parliamentary Committee on Regulatory Reform, *Final Report* (Ottawa, 1981).

163. Science Council of Canada, *Forging the Links: A Technology Policy for Canada* (Ottawa, 1979).

164. Economic Council of Canada, *Looking Outward: A New Trade Strategy for Canada* (Ottawa, 1975); and Senate Committee on Foreign Affairs, *Canada-United States Relations* (Ottawa, 1975, 1978, 1982).

165. For a treatment of this argument, see Francis Fox, *Culture and Communications: Key Elements of Canada's Economic Future*, Brief submitted to the Royal Commission on the Economic Union and Development Prospects for Canada, November 3, 1983.

166. On the early development of the federal and provincial positions, see Woodrow, Woodside, *et. al.*, *Conflict Over Communications Policy*, Chapter 2.

167. On the 1980 constitutional reform negotiations and their aftermath, see Schultz, "Partners in a Game Without Masters . . .", especially p. 69-70.

168. Working Group on Competition and Industry Structure in the Telecommunications Industry, Report to the Federal-Provincial Conference of Communications Ministers, Toronto, October 16-17, 1979. At about this time the CRTC also established an Inter-Regulatory Committee on TCTS rates and services.

169. The second report showed considerable progress in defining the issues and agreeing on options but also the difficulties of getting agreement from all provincial governments as the federal government refused to participate in the discussion of "realignment of roles and responsibilities" while British Columbia dissented from the recommendations on interconnection. See Second Report of the Federal-Provincial Working Group on Competition and Industry Structure, Winnipeg, September 9-10, 1981.

170. See Task Force Exploring Joint Regulatory Mechanisms, Report to the Federal-Provincial Conference of Communications Ministers, Calgary, May 21, 1982. After its first meeting, Quebec was not represented.

171. As of September 1984, CAMPUT has now agreed to allow the CRTC to become a member.

172. It was the Saskatchewan government which took the lead among the provincial governments in developing the communications plans of the constitutional reform package which was developed during 1980. See Roy Romanow, John Whyte and Howard Leeson, *Canada. . . . Notwithstanding: The Making of the Constitution 1976-82* (Toronto: Carswell, 1984), pp. 29-31, 78-79.

173. Government of Manitoba, Submission to the Telecommunications Policy Review, May 14, 1984.

174. Manitoba's concern about satellite bypass related to the possibility that "our American neighbours, in the absence of non-clad controls, would hold a dominant position in the provisioning of services". See Statement by E.R. McGill at

Federal-Provincial Conference of Communications Ministers, Toronto, October 16-17, 1979.

175. See Saskatchewan Submission to the Federal Governments Telecommunications Policy Review, January 14, 1984.

176. *Ibid.*, p. 2.

177. For a discussion of this point, see Szaszkiewicz, *op. cit.* p. 43 ff.

178. Alberta Public Utilities Board, Decision No. E83125, September 27, 1983.

179. See Supreme Court of Prince Edward Island, *In Re Garden of the Gulf Court and Motel*, July 23, 1980, p. 23.

180. See New Brunswick Telephone Company, Memorandum of Evidence on Review of Issues Relating to Interconnection of the Telephone Industry in New Brunswick, April 1984.

181. The Government of Newfoundland and Labrador, Submission to the DOC Telecommunications Policy Review, May 14, 1984.

182. The position of the Nova Scotia government on these issues is much the same as of MT&T. For this reason, the government chose not to submit a brief to the federal telecommunications policy review and let MT&T make its case as well as that of the other Atlantic telcos.

183. For an expression of its concerns about the impact of federal regulatory decisions, see Government of Nova Scotia, Final Argument to the CRTC on TCTS Rates, June 9, 1980.

184. On the case of the "other" CRTC, See Nova Scotia Board of Commissioners of Public Utilities re: Cumberland Rural Telephone Company, September 10, 1979.

185. See Government of Ontario, Final Argument to the CRTC on System interconnection, May 29, 1978; also Final Argument on Terminal Attachment, February 1, 1982; and Final Argument to the RTPC on Vertical Integration, no date.

186. With regard both to enhanced services and satellite services, Ontario wants more or less free and open competition. See Government of Ontario, Submission to the CRTC on Enhanced Services, no date; also Margaret Kelch and J. David Long, "Ontario's Approach to Canadian Satellite Policy", paper presented to Satellite Communications Conference, June 14-17, 1983.

187. For a discussion of these themes, see J. David Long, "Telecommunications Policy in the 1980s – An Ontario Perspective", mimeo, January 1983.

188. See Government of Ontario, Submission to the Telecommunications Policy Review, May 14, 1984.

189. The basic statement of Quebec's position through the 1970s and into the 1980s was Government of Quebec, *Quebec: Master Craftsman of Its Own Communications Policy* (Quebec City, 1973).

190. See Quebec Minister of Industry, Commerce and Tourism, Memorandum to the RTPC on Vertical Integration in the Telecommunications Sector in Canada, September 1, 1981.

191. On joint regulatory mechanisms, Quebec put forth a "fourth" option. Given the difficulties of designing a satisfactory mechanism, Quebec suggested that, instead of leaving the matter to officials and regulatory bodies, "that responsibility lies with us: the politicians". See "Quebec's Proposal for the Study of a Fourth Option Regarding Joint Regulation Mechanisms", Federal-Provincial Conference of Communications Ministers, Calgary, May 21, 1982.

192. See Tamec Inc., *Integrated Development of the Telecommunications Sector in Quebec* (May, 1982). The uncertainty about whether Bell Quebec option would really be desirable is reflected in a recent working paper. See Ministere des Communications, *Le Quebec et les Communications* (October, 1983), Chapter 7.

193. Richard Schultz comments: "Although the final agreement (on transfer of interprovincial and intraprovincial operations to the province) was never struck, the federal government indicated from 1975 on that it was prepared to make such a transfer and its position in 1980 included such an arrangement, at least with respect to intaprovincial

operations". Schultz, "Partners in a Game Without Partners", p. 77.

194. British Columbia, *Towards an Economic Strategy for Canada: The British Columbia Position* (February, 1978), pp. 36-7.

195. Compare, for example, the BC government position on terminal attachment which favours full deregulation with that of BC Tel favouring the status quo ante position. See British Columbia Government, Final Argument to the CRTC on Terminal Attachment, January 15, 1982; and BC Tel, Final Argument, January 13, 1982.

196. For an argument along these lines by the BC Minister of Universities, Science and Communications, see Hon. Pat McGeer, Address to the Canadian Telecommunications Carriers Association, Vancouver, June 23, 1980.

197. See Waverman, *The Process of Telecommunications Regulation in Canada*, Chapter 2.

198. On the history of telecommunications in Nova Scotia, see Nova Scotia Communications Policy Secretariat, The History of Telephone Service in Nova Scotia, July 1983.

199. The Nova Scotia Public Utilities Board has only a full-time Chairman and one professional staff member to deal on a continuing basis with MT&T applications and filings.

200. Howard Windsor and Peter Aucorn, "The Regulation of Telephone Service in Nova Scotia", in G. Bruce Doern (ed.), *The Regulatory Process in Canada* (Toronto: Macmillan, 1978), especially pp. 255-6.

201. Nova Scotia Communications Policy Division, *Telecommunications Legislation for Nova Scotia: A Discussion Paper* (April, 1982); also, *Telecommunications Legislation for Nova Scotia: A Review of Industry Comments* (no date).

202. For a treatment of telecommunications regulation in Saskatchewan, see D.W. Smythe, "A History of Saskatchewan Telecommunications", July 1974, mimeo.

203. On the structure and operation of Sasktel as regulated directly by the Minister of Telephones, see Waverman, *op. cit.*, pp. 68-80.

204. The establishment of the PURC in 1982 meant that the Minister of Telephones and Cabinet were no longer directly responsible for regulating Sasktel, although the Minister does continue to sit on the Sasktel board and also has the power to issue directives to the PURC.

205. The partisan consensus between the Progressive Conservatives and the New Democrats on government ownership of telephones and the benefits of "regulated monopoly" is strong, although there is a degree of competition between Sasktel and a few competitors in specialized markets like paging which are deemed to be beyond the realm of monopoly.

206. Not surprisingly, there is no Liberal Party position on telecommunications policy. Therefore, one must assume that the federal government policy is also Liberal Party policy. See, for example, the former Minister's comments on increased competition and its implications in Fox, Statement to House of Commons Standing Committee on Culture and Communications, May 26, 1983.

207. The Progressive Conservative position can be determined to some extent by its actions during its brief period in office during 1979-80. The Minister of Communications, David MacDonald, pledged reintroduction of federal telecommunications legislation, although probably with a few changes relating to the power of policy direction, consultation with the provincial governments on CRTC appointments, and including cable within the scope of telecommunications regulation. See Hon. David MacDonald, Opening Statement to Federal-Provincial Meeting of Ministers Responsible for Communications, Toronto, October 16, 1979; and Discussion Paper on Canada's Telecommunications Bill: Some Changes Currently Under Consideration by the Federal Government. As well, Progressive Conservative critics of communications policy especially Perrin Beatty, showed a lively interest in the issue.

208. For a sampling of New Democratic Party concerns, see the various comments of its MP's in the House of Commons and the Standing Committee.

209. From a public policy standpoint, this is one of the main reasons why some form of transfer of authority over telecommunications from the federal to the provincial governments in Ontario, Quebec and British Columbia is attractive.

210. See above on the Saskatchewan and Nova Scotia situations.

211. The long distance competition issue seems already to be mobilizing a wider range of interest groups than any recent telecommunications issue and any possible introduction of local-measured service would politicize telecommunications regulation even more. See Patricia Lush, "Long Distance Phone Plan Decried", *Globe and Mail*, September 8, 1984, p. 86.

212. Monopoly versus competition as a source of ideological cleavage in telecommunications regulation operates not only among government departments and agencies and in terms of the positions taken by major industry players like Bell Canada and CNCP but also between the federal government and some provincial governments vis-a-vis other provincial governments.

213. The best overall treatment of this argument and the evidence for it in the Canadian context is still to be found in Manley Irwin, *Technology and Telecommunications* . . .; and for a recent update of these same themes, see the same author's Submission on Behalf of the Director of Investigation and Research Under the Combines Investigation Act to the CRTC on Interexchange Competition and Related Issues, mimeo.

214. See Bell Canada, Memorandum of Evidence on Interexchange Competition and Related Issues, pp. 9-11; BC Tel, Memorandum of Evidence on Interexchange Competition and Related Issues, pp. 10-12.

215. On these points, see Evidence of CNCP on Interexchange Competition and Related Issues, April 9, 1984, Section IV and V.

216. On the notion of "bypass" using foreign service providers, both BC Tel and CNCP have acknowledged that this activity does presently take place but, so far as we know, Bell Canada has made no similar acknowledgement.

217. For a strong statement of this view based upon recent technological developments, see Evidence of Dr. Howard Frank in support of CNCP Application on Interexchange Competition, April 9, 1984.

218. Both Bell Canada and BC Tel seem to agree more or less with CNCP on the future direction of technology and its impact on industry boundaries. Bell Canada talks about "the converging marketplace" and sees telecommunications and computers increasingly having "the same basic capabilities", telephone companies and cable companies "using different distribution systems" but providing many of the same services so that "traditionally distinct industries compete and products now compete in a complex marketplace". Bell Canada, Submission to the Royal Commission on the Economic Union and Development Prospects for Canada, October 14, 1983, pp. 14-5. Likewise, BC Tel talks about "information industry convergence" and argues that advances in integrated solid state technology has "caused a convergence of technologies that has blurred old distinctions between industries performing separate functions in our information sector". BC Tel, Comments on the Telecommunications Policy Review, May 14, 1984, p. 37.

219. This distinction is made in Anthony G. Oettinger with Carol L. Weinhaus, *Players, Stakes and Politics of Regulated Competition in the Communications Infrastructure of the Information Industry*, pp. 43-5.

220. Grant Backler, "Cable Seen as a Data Medium," *Computing Canada*, October 14, 1982, p. 42; Robert Steklasa, "LANS Technology May Hold Key to the Future", *Financial Post*, February 19, 1983, p. S12; Jonathan Cheveau, "True Portability Possible With Cellular," *Globe and Mail*, March 11, 1983, p. B18; and "Changing Phone Habits," *Business Week*, September 5, 1983, pp. 68-76.

221. After reviewing the same technologies treated above, it is instructive to note BC Tel's conclusion that "while the full impact of these technologies will not be felt for another decade, Canadian telecommunications and information

industry policy should reflect the changes necessary for transitional readjustment". BC Tel, Comments on the Telecommunications Policy Review, May 14, 1984, p. 36.

222. On the growth of competition in the area of cellular radio, see Jonathan Cheveau, "Portage Telephone Race Under Way", *Globe and Mail*, January 31, 1983, p. B4; and Robert Steklasa, "Cellular Radio Holds Promise of Rich Revenues," *Financial Post*, March 26, 1983, p. 32. With regard to LANS, see "Digital PABXS can Act as Local Networks," *Globe and Mail*, May 20, 1983, p. B17.

223. The cost factor is clearly important with a cellular radio unit presently costing $2500 but expected to drop to $500 or less within five years and LANS costing up to $2000 per attachment but also expected to go down as a result of chip technology. See Robert Steklasa, LANS Technology May Hold Key to Future", p. S12; and Jonathan Cheveau, "Portable Telephone Trade Under Way," p. B4.

224. The specification of what constitutes basic service keeps inflating. For one "package" which could easily be expanded, see Federal-Provincial Working Group on Competition/Industry Structure, Second Report, pp. 28-39.

225. Satellite transmission had earlier suffered from a scarcity constraint similar to that of the radio frequency spectrum but that has now been eliminated through domestic and foreign availability of channels. See, for example, Nordicity Group Ltd., *New Communications Technology and Services*, a report prepared for the CRTC Research Division, December 1983, also, "No Customer for Satellite, Telesat Will Launch it Anyways", *Globe and Mail*, September 25, 1984, p. 3.

226. On this possibility, see Peat Marwick and Partners, *A Study of the Effects of Intermodal Competition on the Canadian Telecommunications Industry and Services*. Prepared for the Department of Communications, May 1983.

227. It is interesting to note that Telecom Canada, Bell Canada and CNCP Telecommunications have all recently entered into agreements with American long distance transmission providers for discount rates of various sorts as one way of preempting potential competition.

228. See Jonathan Chevreau, "Many Issues Already Solved as Inquiry Enters New Phase," *Globe and Mail*, August 8, 1981, p. B6; and David Stuart-Patterson, "Report Urges Bell, BC Tel Retain Equipment Units," *Globe and Mail*, January 20, 1983, p. B1.

229. On provincial government practices, see Martin Mehr, "Ontario Sets Torrid Pace for Interconnect," Ken Kidd, "Battle for Phone Contacts Heat Up in BC", Robert Karniol, "Credo for Quebec: Proceed With Caution", all in *Financial Post*, July 17, 1982, pp. 14-16.

230. See Jonathan Chevreau, "Canadian Telecommunications Carriers Plan Standardized Service World-Wide," *Globe and Mail*, March 10, 1982, p. B6; and David Stuart-Patterson, "CSA To Set Standards in Telecommunications," *Globe and Mail*, January 27, 1983, p. B13.

231. On the Bell Canada and CNCP interconnect strategies, see Martin Mehr, "Bell Revises its Strategy to Cope With Competition," *Financial Post*, July 17, 1982, p. 14; and Jonathan Chevreau, "New Interconnection Company, Raises Questions in the Industry," *Globe and Mail*, January 30, 1982, p. B2.

232. See Jonathan Chevreau, "Canada Post, TCTS Seal Electronic Mail Venture," *Globe and Mail*, February 26, 1983, p. B16; and on Nabu and its cable-linked computer, see Frederick Rose, "Nabu Future Depends Heavily on Acceptance of its Network," *Globe and Mail*, June 3, 1983, p. B15.

233. See Jonathan Chevreau, "Bell May Branch Out, But Not in Data, TV", *Globe and Mail*, February 4, 1983, p. B6.

234. On the differing perspectives of the telephone and cable companies, see "A Bell System Perspective on Videotex," *Telecommunications Policy*, 6 (September 1982), pp. 237-41; also, Tamec Inc., *Videotex Services: The Market Potential for Cable* (Montreal, 1979).

235. For a good discussion of the potential for expansion in this area, see S. Berger and P.K. Neogi, "The US Department of Justice – AT&T and IBM Anti-Trust Settlements: Some

Canadian Comparisons", *Canadian Regulatory Reporter*, 2 (1982), pp. 5-1 to 5-8.

236. See for example, Steven Flax, "The Latest Way to Foil the Phone Monopoly", *Fortune*, April 16, 1984; also "The Push to 'Bypass' Local Telephone Companies", *Business Week*, August 27, 1984, pp. 90-2.

237. In this regard, mention should be made of the "teleport" model whereby residential and business customers could gain access to alternate means of distribution but this is still a few years off.

238. See Hudson Janisch, "Competition: An American Export – Canadian Import?", pp. 5-3 to 5-5.

239. Note how the Hon. Francis Fox, in his remarks to the House of Commons Standing Committee, referred to this instability as the likely manifestation of increased competition in the years to come.

240. More explicitly on this point, see Manley Irwin, "Markets Without Boundaries", *Telecommunications Policy*, 8 (March 1984), pp. 12-15; also, Lawrence Surfees, "Telecommunications Knows No Bounds", *Globe and Mail*, July 28, 1914, p. 81.

241. On this point, then, we must disagree with our able colleague Hudson Janisch. See his "Telecommunications Ownership and Regulation in Canada: Compatability or Confusion?", p. 14.

242. See Consultative Committee, *Telecommunications and Canada*, Chapter 1.

243. When possible solutions along these lines were explored by the Federal-Provincial Working Group on Competition/ Industry Structure, they fell through. See Working Group, *Second Report*, pp. 2-18.

244. Melvyn Fuss and Leonard Waverman, *The Regulation of Telecommunications in Canada*, Economic Council of Canada, Technical Report No. 7, (Ottawa: Economic Council, 1982).

245. See, in particular, R.J. Buchan and C.C. Johnston, "Telecommunications and the Constitution: A Lawyer's Perspective", pp. 126-29.

246. On this theme, Kenneth A. Shepsle and Barry R. Weingust, "Political Solutions to Market Problems", *American Political Science Review*, 78 (June 1984), pp. 417-34.

247. A good discussion of alternative explanations can be found in Thomas K. McCraw, "Regulation in America: A Review Article" *Business History Review*, Vol. 49, No. 2 (Summer 1975), pp. 159-83. Also, see G. Bruce Doern, ed. *The Regulatory Process in Canada* (Toronto: Macmillan 1978), pp. 1-27.

248. One useful discussion of the role of the state and regulation in Canada can be found in Carman D. Baggaley, *The Emergence of the Regulatory State in Canada, 1867-1939* (Ottawa: Economic Council Technical Report No. 15, 1981).

249. Leonard Waverman, *The Process of Telecommunications Regulation in Canada*, Regulation Reference, Economic Council of Canada, Working Paper No. 28 (Ottawa: Economic Council 1982), pp. 69-72.

250. M. Fuss and L. Waverman, *op. cit.*, pp. 147-59.

251. *Ibid.*, pp. viii-ix.

252. Manley R. Irwin and John D. Ela, "US Telecommunications Regulation: Will Technology Decide?", *Telecommunications Policy*, March 1981, pp. 24-8, William Gosling, "Information Technology's Seven-League Boots," *The Political Quarterly*, Vol. 54, No. 2, April-June 1983, pp. 120-25.

253. Anthony Oettinger with Carol Weinhaus, *Players, Stakes and Politics . . .*, p. 1.

254. CRTC Telecom Decision 79-11, May 17, 1979.

255. CRTC Telecom Decision 80-13, August 5, 1980; CRTC Telecom Decision 82-14, November 23, 1982; and CRTC Decision 84-14, April 27, 1984.

256. CRTC Telecom Decision 84-10, March 22, 1984.

257. For information on the status of terminal attachment across Canada, see Department of Communications, *Canadian Telecommunications: An Overview . . .*, Table B1.

258. For a recent discussion of barriers to entry, see Charles Dalfen, *et. al.*, *New Entry Into Telecommunications Services Markets in Canada.* (A report prepared for the Department of Communications, April 1982).

259. CRTC Telecom Decision 81-13, July 7, 1981.

260. On this argument, see Nina W. Cornell, Daniel Kelley and Peter R. Greenhalgh, "Social Objectives and Competition in Common Carrier Communications: Incompatible or Inseparable?", in H.M. Trebing (ed.), *Energy and Telecommunications in Transition* (Lansing: Michigan State University, 1981), pp. 43-74.

261. CRTC Telecom Decision 82-9, September 29, 1983; CRTC Telecom Decision 83-10, July 26, 1983; and CRTC Telecom Decision 84-19, July 27, 1984.

262. Note in particular the rationale that one competitor cannot be allowed to gain an advantage over the other in a duopolistic situation.

263. It might be pointed out that the CRTC relied on a "structured competition" approach with regard to pay-TV until it became clear that the pay-TV market would simply not support such a model. For a discussion of some of the problems associated with such an approach, see the present authors' "Technology, Competition and Pay-TV: Perspectives on the Canadian Experience", a paper presented for the Twelfth Annual Telecommunications Policy Research Conference, Airlie, Virginia, April 23-26, 1984.

264. CRTC Telecom Decision 84-18, July 12, 1984.

265. This is the concern which AT&T articulates when it calls for a "level playing field" in the US regulatory context. It is also an argument which Bell Canada is beginning to make in Canada.

266. CRTC, *Report of the Canadian Radio-Television and Telecommunications Commission on the Proposed Reorganization of Bell Canada,* April 1983.

267. Hudson Janisch has recently argued that structural separation or separate subsidiaries provides an alternative to more "behavioral regulation" based upon elaborate costing procedures. See Hudson Janisch, "Cost Separation Versus Structural Separation", a paper presented to the Telecom Canada Planning Conference, Ottawa, February 16, 1984.

268. Anthony E. Oettinger with Carol L. Weinhaus, *Players, Stakes and Politics . . .*, p. 48 and p. iii; and Leland L. Johnson, *Competition and Cross-Subsidization in the Telephone Industry,* Rand Corporation R-2976-RC/NSF, December 1982, pp. 7-8.

269. For a treatment of how costing and cost recovery are often confused and how increased competition makes it even worse, see David Owen, "Costing Versus Cost Recovery", mimeo, August 13, 1980.

270. CRTC, *Report of the Inquiry Officer with Respect to the Inquiry into Telecommunications Carriers' Costing and Accounting Procedures: Phase III – Costing of Existing Services,* April 1984.

271. For the definition of the fully-distributed cost approach, see Leland L. Johnson, *op. cit.*, p. 11. For a description of the incremental methodology, see Johnson, *op. cit.*, pp. 13-4.

272. For a summary of the main recommendations, see CRTC, *Report of the Inquiry Officer*, pp. 210-7.

273. Nova Scotia's recent experience with costing is instructive. The PUB undertook 1981 to examine the MT&T costing of services and, in 1983, three studies reaching very different conclusions were produced. The PUB has yet to reach a final decision. See W.H. Melody, *Telecommunications in Nova Scotia: A Cost of Service Study for MT&T, Ltd.*, March 1983; *Response of MT&T, Ltd.*, June 1983; and Charles Rivers Associates, *Economic Costing Principles for Telecommunications,* September 15, 1983.

274. Leland L. Johnson, *op. cit.*, p. 1.

275. It should be noted that some telco executives argue that cross-subsidization is an inappropriate concept to apply to the telephone network because the system has to be viewed as a whole rather than broken down into component parts.

276. See Bell Canada, *Report on the Five-Way Split of 1982*, September, 1983.

277. See NAPO, Application for Costs and Argument to the CRTC on TCTS Rates, June 1980.

278. See CNCP, Application for Interexchange of Traffic with Public Switched Telephone Networks, October 25, 1983; also, Response to Request for Particulars, CNCP P(Bell), 21 December 1983, 305-IC.

279. See Peat Marwick and Partners in association with National Economic Research Associates, Inc. and Telecomsyst Services, Inc., *Impacts of Competition in Message Toll Telephone Services*, A study carried out for the Department of Communication and Provincial Governments, September 28, 1984.

280. For example, see William H. Melody, "Competition and Subsidies as Instruments of Social Policy in Telecommunications" in *1981 MSU Public Utilities Papers* (East Lansing, Michigan: Institute of Public Utilities, 1981), pp. 75-93; and Nina W. Conrell, Daniel Kelley and Peter R. Greenhalgh, "Social Objectives and Competition in Common Carrier Communications: Incompatible or Inseparable?" in *1981 MSU Public Utilities Papers* (East Lansing, Michigan: Institute of Public Utilities, 1981), esp. pp. 45-6.

281. In its evidence on interexchange competition, CNCP presents itself as a "price follower" who responds to the telcos who are the "price leaders". This matter of timing has now been raised explicitly by Bell Canada's recent application to the CRTC for rate rebalancing along flat rate lines. See Lawrence Surtees, "Bell Proposal Would Double Local Rates", *Globe and Mail*, September 8, 1984, p. 1.

282. For a discussion of various pricing mechanisms, along with access charges, and how they could be used to retain a more

targeted commitment to social cross-subsidies, see Leland L. Johnson, *op.cit.*, p. 59.

283. For a discussion of the need for LMS in the United States, see Januss A. Ordover and Robert D. Willig, "Local Telephone Pricing in a Competitive Environment", in Eli M. Noam, *Telecommunications Regulation Today and Tomorrow*, pp. 267-89; also R.E. Park, B.M. Mitchell and J.H. Alleman, *The Effect of Charging for Local Calls on Residential Telephone Use: Initial Analysis of Data from the Illinois GTE Experiment* (Santa Monica: Rand Corporation, 1979); R.E. Park and Bruce M. Wetzel, *Charging for Local Telephone Calls: Price Elasticity Estimates from the GTE Experiment* (Santa Monica: Rand, 1980); National Economic Research Associates, Inc., Residential Demand for Telephone Service 1983, December 16, 1983; and James M. Griffin and Thomas H. Mayor, "The Impact of Local Measured Service on the Texas Consumer", September 1983, mimeo.

284. See CRTC Public Announcement, Bell Canada – Usage Sensitive Pricing, December 20, 1979. For background on the Bell Canada proposal, see W.J. Withers, "Developments in Usage Sensitive Pricing for Local Exchange Service", *Canadian Regulatory Reporter*, 2 (1981), pp. 5-1 to 5-16.

285. For current Canadian commentary on LMS as a possible alternative, see Richard Schultz and Peter Barnes (ed.) *Local Telephone Pricing: Is There a Better Way?* (Montreal: Centre for the Study of Regulated Industries, 1985).

286. The Tamec Report argued that, in order to maintain "universal service at a just and reasonable rate", "it would seem that the only way to maintain our *objective* would be to introduce a local-measured service rate structure.... This type of rate structure would be the only way to seriously correct the cash flow of Bell Quebec characterized by inadequate revenues and excessive fixed costs". Tamec, *Integrated Development...*, Section 4.1.2.

287. For evidence of this promotional activity, see Bell Canada, *Measure for Measure: A Look at Local Measured Service*, issued in the Fall of 1983.

288. See Schultz, "Partners in a Game Without Masters", pp. 65-90.

289. This point was effectively made through the presentation of Quebec's "fourth option".

290. For an optimistic discussion of these and other developments, see T. Gregory Kane, "The Constitutional Basis for Jurisdiction; Evolving Federal & Provincial Rules", in T. McPhail and S. Hamilton (ed.), Communications in the 1980's: *Major Issues*, pp. 1-13.

291. For statements on the need for procedural reform in a national context, see David Colville, "National Dimension to Policy Will Achieve Goals" and Frederick M. Bartlett, "Streamlining the Process Only Way to Achieve Reform", *CIPS Review* 6 (May-June, 1982), pp. 18-20 and 14-16.

292. On the prospects and problems associated with substantive deregulation, see Jim McDaniel, "Canada's Future Growth Demands National Policy" and Donald Cruikshank, "Improve the Present Situation With Regulatory Consultation", *CIPS Review* 6 (May-June, 1982), pp. 4-7 and 26-27

293. This is the conclusion presented in Richard Schultz, "Federalism and Telecommunications: Multiplication, Division and Sharing", *Osgoode Hall Law Journal*, 20 (December 1982), pp. 745-61.

294. See W.T. Stanbury and Fred Thompson, "The Prospects for Regulatory Reform in Canada: Political Models and the American Experience", *Osgoode Hall Law Journal*, 20 (December, 1982), pp. 680-718 and especially p. 709.

295. See CNCP, *Crisis in Canadian Telecommunications Policy and Regulation*, Part II.

296. Jonathan Chevreau, "Bell Willing to Lease Telephone Unit to provinces", *Globe and Mail*, April 29, 1983, p. B3. Also, note Section 11(2) of Bill C-20 which reads:

> Except in the ordinary course of the business of the Company, no facilities of the Company that are integral and necessary for the carrying on of telecommunications activities shall be sold, leased,

loaned or otherwise disposed of without prior approval of the Commission.

297. For detailed discussions of the board and panel proposals, see the various contributions in R.J. Buchan, *et. al.*, *Telecommunications Regulation and the Constitution* (Montreal: Institute for Research on Public Policy, 1982); also Federal-Provincial Conference of Ministers of Communications, "Report of the Federal/Provincial Task Force Exploring Joint Regulatory Mechanisms", Calgary, Alberta, May 21, 1982.

298. On the panel proposal and its utility see T. Gregory Kane, "Breaking An Impasse: A Joint Panel Proposal for Telecommunications Regulation", in R.J. Buchan, *et. al.*, *Telecommunications Regulation and the Constitution*, pp. 225-46.

299. For the dissenting viewpoint, see Andrew J. Roman, "Cabinet Directions to Regulatory Agencies: A Bold Leap Backward", *Canadian Regulatory Reporter* (1981) pp. 5-137 to 5-158.

300. For the CRTC Chairman's position, see CRTC, *Annual Report, 1982-83*, pp. ix-x.

301. A power of "forebearance" is important on two counts: first, it accords with the notion that as competition becomes increasingly operative, there is less need for regulation; secondly, it allows the regulatory agency to exercise its regulatory powers more judiciously. For an argument in favour of the "forebearance" power, see Charles Dalfen, J. Yale and L. Dunbar, New Entry into Telecommunications Services Markets in Canada, A Report prepared for the Department of Communications, April 1982.

302. See Application by CNCP Telecommunications to the CRTC re: Interconnection with AGT, September 17, 1982.

303. See, for example, C.M. Dalfen, "Constitutional Jurisdiction Over Interprovincial Telephone Rates", *Canadian Communications Law Review*, 2 (1970), pp. 177-190; and D. Mullan and R. Beaman, "The Constitutional Implications of the Regulation of Telecommunications", *Queen's Law Journal* 2 (1973), pp. 67-92.

304. *Alberta Government Telephones V. CRTC* decision rendered by the Federal Court of Canada, Trial Division, October 26, 1984 (mimeo)

305. Richard Schultz, "Regulation as Maginot Line . . .", pp. 203-18.

Comments on Woodrow & Woodside

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Introduction

The purpose of the Woodrow and Woodside paper is "to identify the major issues confronting telecommunications regulation in Canada over the next five to ten years and to examine the political factors underlying how these issues are likely to be raised and resolved." This is clearly a very ambitious task as it is for the other authors in this volume. Anyone – authors, commentators, industry and public decision-makers – who attempts to understand the future in the constantly changing world of telecommunications faces a daunting task. In doing so all are well advised to heed the wisdom in Lord Melbourne's comment that "What all the wise men promised has not happened, and what all the damn fools said would happen has come to pass."

Woodrow and Woodside start out with two fundamental statements whose validity, I believe, to be unchallengeable:

- Governments played a minimal role in the development of Canadian telecommunications until the last decade or so.
- Politics – political processes and public institutions – will be central to the way in which telecommunications issues are raised and resolved.

Unfortunately, the authors do not appear to recognize the irony in these two comments nor do they sufficiently attempt to explain why politics, so long irrelevant, should assume, or be allowed to assume, such prominence.

In attempting to analyse the roles and impacts of politics, I believe that there is a useful distinction to be made between what can be called "high" and "low" politics. "Low" politics involves the players, the stakes, the issues, the conflicts; "high" politics, on the other hand addresses questions such as "what should the role of political forces and institutions be in a sector?" and "what roles can governments effectively play?". In my opinion, Woodrow and Woodside have directed their attention primarily at the first or "low" politics and have done so with considerable skill. "High" politics, however, receive far less attention than they merit. In the rest of my comments, I will concentrate on these two aspects of the paper.

Low Politics

As I have just mentioned, I think the authors have dealt with the "low" politics of future telecommunications issues with skill. Their paper is, I think, comprehensive and offers some penetrating, perceptive insights into the players and stakes. I was particularly struck by the parsimonious treatment of "partisan, electoral and public opinion considerations", some 2.5 out of 50 pages. Unfortunately, this is an accurate reflection of the political reality of telecommunications issues today. Our politicians and political parties have largely ignored the issues for the most part. To cite a specific supporting example, at a conference on telephone pricing and the need to consider local measured service held in May 1984, not one representative of a political party—elected member of staffer, federal or provincial—attended even though invitations were sent to every government and opposition party in the country. Given the widespread discussion of the "information revolution", I would have been interested in Woodrow and Woodside's attempt to explain why the politicians have been so absent, except, of course in Canada's original version of "trivial pursuit", intergovernmental conferences. More importantly, I think we need to ask *how* we get telecommunications issues placed on the public agenda so that we can have informed political debate?

With respect to the "issues and options" sections, I think, with a few exceptions, this is a solid catalogue. I use "catalogue" deliberately, and unfortunately, somewhat negatively. I would have preferred less description and more analysis of the political forces at work and of the resources of the major players. This would require an attempt to rank the issues. In addition I would have liked to have had the authors' guidance and professional judgments on what they expect the outcomes might be and how political forces will shape those outcomes. In short, an attempt to explain how politics will affect the winners and losers in Canadian telecommunications.

I have comments on three of the specific issues that the authors' identify as significant, namely the bypass problem, the pricing of services and the directive power. Without attempting here to provide a counter argument, I am far less sanguine than the authors about the capacity of governments to control bypass. In part the problem is the far too restrictive definition of bypass. In my opinion, bypass should not be limited to the creation of private telecommunications systems but should encompass any form of service that withdraws or reduces the contribution of funds to the public telephone system. According to this definition, bypass includes not only private systems, of which we can probably expect few in Canada compared to the number being developed in the United States, but also and more importantly, the growth in private line services and the diversion of traffic to the United States through such services or through resellers such as Longnet or Camnet. For those who place their faith in the government's ability to control such developments, I would remind them that the last successful federal attempt to control bypass was when Marc Lalonde prevented the World Football League from coming into Canada.

My major disappointment in the paper is the treatment of the pricing issue. In my opinion, the authors have not dealt sufficiently with the politics of future pricing. In my view, the pricing of telecommunications services, particularly residential telephone service, will be the central political issue in telecommunications in the next decade. The sides are already being formed and positions being developed. The conflicts will be particularly intractable because they will merge income or class conflicts with interregional conflicts. Moreover, the conflicts will centre on a system of subsidies that the overwhelming majority of recipients do not even know they receive. There is little evidence that there is a public demand for a reduction in long distance rates; nor will there be a sympathetic response to the argument that change is needed when the primary beneficiaries will be large business users.

I would have appreciated an analysis of the politics of directive powers. Although a number of commentators have developed a reasoned defense of the need for such a power within a strict set of safeguards to prevent their abuse, I have been disappointed by how bureaucratic participants, particularly but not solely within Ottawa, have exploited those arguments in order to engage in bureaucratic imperialism. The most recent legislative proposal, Bill C-20, which the new government proposes to reintroduce largely in the same form, incorporates the worst possible characteristics: enhanced bureaucratic power without a meaningful set of effective public safeguards.

High Politics

High politics involve not the "to-ing and fro-ing" of players but far more fundamental matters. In particular, in the context of this paper, they are concerned with the competence and capacity of political as opposed to other actors. High politics directs attention at the proper role of public and private institutions and the relationships between public and private decision-making. As the authors' have not directly addressed these questions, it is perhaps somewhat unfair to bring them into the discussion of their paper. My defence of doing so is simply that it is imperative, I believe that we debate these issues before we radically change a system that has in fact worked quite well and especially before we assign our public institutions roles that they may not be capable of handling.

To date we have not had a debate in Canada about the appropriate roles and responsibilities of the public and private sectors in telecommunications. I think this is most unfortunate. When I look back over the past decade, one of the most startling developments is the extent to which private sector participants, particularly the telecommunications carriers have had to reassess their basic philosophies, their values and the roles and relationships to others in the telecommunications system. This has clearly not been easy; it has not been ungrudgingly undertaken; it is not yet complete. We are, however, in terms of service providers, well on the way to accepting choice, to sharing decision-making, with subscribers. In short, however grudgingly, however imposed, carriers and others are in the process of accepting what Charles Brown, Chairman of AT&T called the "new realism".

Our public institutions in Canada have not, with few exceptions demonstrated to date a comparable degree of reassessment, of willingness to redefine their roles, their relationships, their prerogatives. While some are all too happy to impose change on those they govern, none appear equally willing to do so to themselves. Surely, however, they too must accept the "new realism".

I am not able in these comments to suggest in detail what I believe the contents of a "new realism" for the public sector should be. I will limit myself to proposing that public decision-makers, in addressing the question "what can and should be their role in the face of technological change in telecommunications?" should be modest in their ambitions. Public policy, as Charles Schultz once noted, should be treated as a scarce resource and therefore not squandered. This was also the advice of the authors of the recent Charles Rivers Associates study of telecommunications in the United States who proposed that

> . . . the public policy stance should be one of skepticism or at least limited "nervousness". As is often the case with regulatory "devils" they should be exorcised *only when and if they appear* and not prematurely or in anticipation. (emphasis added)

On the other hand, if public policy makers are not inclined to take advice from economists, perhaps they might pay heed to Shakespeare who wrote that "Modest doubt is called the beacon of the wise, the tent that searches to the bottom of the worst." Although we have not seen much modesty to date from our public institutions, I hope that this paper and its companions which have usefully set out the major issues and problems that we face in the telecommunications sector will give pause and encourage it.

Comments on Woodrow & Woodside

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In reading the Woodrow/Woodside paper, I was struck by the notion that it's really two papers in one – the first two sections present a very complete backgrounder on the industry, including as thorough a description of the players as I've seen, while the last two sections concentrate on issues, problems, and likely outcomes. I shall concentrate on the latter two sections. As someone engaged in the analysis of policy matters related to telecommunications, naturally I think that the identification of issues is of fundamental importance.

While one can always expand or compress a list of issues by adding or subtracting sub-issues, it strikes me that the list of issues which I would construct on the basis of the telecommunications policy review which we now have underway and with which I think most of you are familiar, is not significantly different from the series of issues and problems suggested by the authors in the last two sections of their paper, what this perhaps means is that the issues are fairly well known, or fairly well agreed upon, by those close to the industry.

It seems to me that there is almost a one-for-one correlation between the "issues" raised in Part III of this paper and the "problems and prospects" raised in Part IV, so I shall treat them jointly, in the order in which they are raised as problems in Part IV.

The first problem raised by the authors is that of "breaking the jurisdictional and regulatory impasse". Given the other issues and problems identified by the authors, and which are also of considerable importance, I'm not sure that I would agree with the authors that . . ." the first priority in facing the future of telecommunications regulation in Canada is to find ways of breaking the jurisdictional and regulatory impasse". Specifically, I am not convinced that, as the authors suggest, it is necessary, through negotiation or litigation, to clarify and then reshape the roles and responsibilities of the federal and provincial governments in the telecommunications field. My concern would be that an all-out effort, *a priori*, to reshape roles and responsibilities in telecommunications matters, would lead to the kind of confrontation which would in itself become, in the words of the authors, "a real impediment to further development of the telecommunications sector". I agree wholeheartedly with the authors on the need for mechanisms for consultation and coordination among policy-makers and regulators, and on the need to rationalize the national dimension with that of the provinces. In fact, I think that it may be in these two areas that the greatest return on effort is likely to be found. In setting as a first goal, though, the realignment of responsibilities, we may simply be minimizing the likelihood of workable solutions being put in place in the short term.

I don't mean to make this a commercial for the telecommunications policy review, but what we are attempting to do ties in with what I've just said. In the policy review we are trying to accomplish the possible in a timely manner. Our objective is to enable the government to put in placed policies which will deal with the major issues before events overtake us to the point that the issues cannot be dealt with. To a large extent, we feel that this means dealing within existing jurisdictional boundaries.

At this point, I'd like to comment briefly on a matter which comes up in this section of the paper as well as in other sections. The authors suggest, in this section, that only if progress is made in the area of jurisdictional and regulatory reform can it be reasonably expected that movement towards substantive deregulation can take place in an orderly and effective manner. There is a presupposition here, and it arises in various places in the paper, that deregulation is or has been a goal in telecommunications in Canada. Indeed, the authors say that "the movement towards deregulation in Canada has thus far been generally unsuccessful". Perhaps it's a matter of semantics, but I'm not sure that one can be said to be unsuccessful when something that one did not have as a goal is not accomplished. The point is that deregulation, at least in telecommunications, is an American term and an American phenomenon. The government's approach to regulation/deregulation thus far is summed up in a quotation cited by the authors in a footnote, which reads:

> . . . in the Canadian context, it is less 'de-regulation' that 're-regulation' which is the order of the day. Emphasis must be placed on making the regulatory process work more efficiently and not on eliminating public oversight.

Thus, although the new government may want to revise the approach, the emphasis at the federal level has been on regulatory reform, rather than deregulation.

Having taken issue with something the authors say in this section, I would also like to focus on an area in which I agree with the authors' conclusions. They suggest that both the government's power to issue policy directives and the right of Cabinet appeal from agency decisions must be accepted. The Cabinet appeal mechanism exists pursuant to the National Transportation Act, but the policy directive power does not yet exist, although it has been proposed in four pieces of legislation. This is one of the reasons why Bill C-20 was introduced in the previous session of Parliament, and the Department is working on a revised version of that piece of legislation for possible re-introduction, depending, of course, on the priorities of the new government. A provision permitting the CRTC to forebear from regulation could also be an important feature of new legislation.

The second problem area raised by the authors is that of separating monopoly from competitive markets. If one accepts the discussion for what it is, which is less one of separating monopoly and competitive markets, which I would characterize as the boundary issue, and more one of the regulatory treatment of traditional carriers versus new entrants, I think that some valid points are raised.

In the discussion leading up to this section, the authors suggest that the growing appeal of deregulation makes the maintenance of full regulated monopoly infeasible at the federal level. The conclusion, I think, is quite correct – the writing on the federal wall has been apparent for some time – in that there is a predisposition towards competitive solutions where they are feasible, with the important proviso that universal access to reasonably priced basic services should not be jeopardized. To tie back to the points I've just made on deregulation, though, I think that the genesis of this pro-competitive movement is to be found not as the authors suggest in the growing appeal of deregulation, but in the growing awareness among users that there are competitive alternatives, whether we are speaking of major business of institutional users, or ordinary residential subscribers. While the authors suggest that the task facing policymakers is to determine how much competition should be allowed, and how and where the line should be drawn, I think the task might rather be to determine how best to ensure that the universal availability of service is not eroded, in an environment which is becoming more competiive in line with the general wishes of customers.

I cannot pass from this issue without making a specific comment relative to one of the ways in which the authors see monopoly and competitive markets being separated, and that is what they refer to as "market sharing", calling it a particularly pernicious form of regulated competition. Whatever the authors' opinion of so-called "market sharing", I think that the Department's cellular mobile radio policy is treated somewhat unfairly by being labelled as a "market sharing" decision. Rather than being based on market sharing, the policy sought to establish an environment in which as many competitors as technically feasible (two) could participate in the market. Moreover, the Department's approach throughout the cellular policy process has been to set the stage for equitable competition between the providers, rather than, as the authors suggest is the case with market sharing, handicapping any of the players.

The third problem area raised by the authors is that of moving prices towards costs. Here I can agree with all or most of the authors' presentation. There is, as the authors suggest, wide disagreement as to the extent and degree of cross-subsidization, but most interested observers seem to agree that it does exist, and I think that the events in the United States would seem to support that notion.

If we put it in its simplest policy context, the issue is really "who should pay for telecommunications service?", and it is very much tied to the previous issue, where we looked at the pressures for competition. As a policy advisor, I would select this as the fundamental issue that has to be dealt with over the next few years.

The fourth problem area treated by the authors is what they call the restructuring of the telecommunications regulatory regime. Here the authors raise the concern of bypass, as both a potential and actual threat to the telecommunications carriers. I find the authors' treatment of bypass to be reasonable, and they quite correctly point out that the concept has different meanings for different players. I think that it is useful to make a distinction between different kinds of bypass:

- Company bypass
- Public network bypass
- Bypass of Canadian facilities
- Economic/Uneconomic Bypass

As a policy advisor, it is much easier to come to a conclusion on the latter two – bypass of Canadian facilities, and economic/uneconomic bypass – than it is on the former two. Clearly, from a national policy perspective we must be concerned with the integrity and continued viability of the Canadian infrastructure and we would be concerned with the wholesale bypass of Canadian facilities. Likewise, it seems to me that bypass which is feasible primarily because of a system of cross-subsidies has to be looked at closely to determine how the public interest is best served.

In the same section, I read with great interest the discussion on satellites and cable as alternative telecommunications providers, and that on the future of Telecom Canada as an organization.

The Telecom Canada section was particularly interesting, although it left me wanting to read more about possible restructuring schemes. The authors' point about the need for some restructuring in the face of increased competition seems to be well taken.

Having said all of this, it remains for me to go back to the original intent set out by the authors – the identification of the major issues and the examination of the political factors underlying how these issues are likely to be raised and resolved – and to suggest that the authors have been quite successful. While, as with any worthwhile work in a complex area, one can debate certain aspects of the paper, all in all I believe that it provides a useful contribution to the consideration of issues and policies that will affect Canadian telecommunications for the rest of this century.

Comments on Woodrow & Woodside

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Professor Globerman touched upon "the wisdom of the telco as a natural monopoly". Without commenting on Bell and BC Tel, let me say that people of the Prairie Provinces made that decision long ago, just as they did on hydro, gas, highways, among a number of services.

It has been suggested that Saskatchewan officials are on record as opposed to competition. What has been stated is that we are opposed to the CNCP application in the IX hearing, because it's not of benefit to those Canadians not living in either Ontario, Quebec or British Columbia. The CNCP application is not for competition. We are not opposed to true competition. I don't believe that any company could truly "compete" with the existing carriers, and particularly SaskTel, in an open competitive environment. So let's stop calling it competition, and give it its proper name – "market sharing".

In Saskatchewan, the true cost of supplying the average farm phone is $45 a month. However, the farmer actually pays only one quarter that cost. I'm not suggesting that CNCP's entry into the long distance business will drive the price of the farm phone up to the true cost, but in the politician's mind this possibility would loom large in a province that is agriculturally-based.

Andrew Elek of Peat Marwick, has said that 5,000 Canadian households would drop off the system. This was the best situation. The worst situation for Saskatchewan alone is 10,000 households droping off the system if there was a 150 percent increase in SaskTel rates. And this is a very real possibility if you look at the current cost of supplying the farm phone.

Professor Globerman promotes the idea of LMS. This, however, is just not an acceptable alternative in a province such as ours where the telco is owned by the people of the province. Saskatchewan residents regard SaskTel as their telephone company. I would venture to guess that Saskatchewan residents would be prepared to pay higher monthly rates before having LMS inflicted on them.

The "two-party" line service that has been talked about here today is not an acceptable option. Our telephone company has spent a fortune, as have the other telephone companies in this country, providing us with single party lines. Today, there would be no saving for the telephone companies if they were now to revert to two-party or multi-party line service. It would be a pretense at two-party, when it would, in fact, be single-party.

I can only bring you a few insights into how a government views this issue – a view that is not better, or worse that the view of others here. But it is a view that is at times different.

The Woodrow/Woodside paper fairly accurately reflects what has happened and is happening in telecommunications throughout Canada. For me, reading it was a little like revisiting the agonies of the past decade. I can trace from the pages what I, and my colleagues, have been doing these past years, or have not been doing.

The paper, I thought, took a good stab at explaining the politics of telecommunications in Canada, or telepolitics as it should be known. And it does so without being overly judgmental. However, I found it somewhat disconcerting that having recognized a political dimension to telecommunications the paper eventually leads us, unwittingly, to the conclusion that the current unrest in the industry will not be solved by a political solution.

Well, there are those who strongly believe that these problems can only be solved by the elected representatives working cooperatively, and handing down policy to their regulators. The courts should not be expected to determine policy for our telecommunications industry; nor should it be left to regulatory bodies, the telephone companies, or special interest pressure groups.

I could go on at great length why politicians should sort out these difficult issues that impact all of our lives, but I won't. It is enough to say that we elect these men and women to make these decisions for us, and if we believe they've made poor decisions, then we have the right to vote as we see fit.

Another disturbing aspect of this paper and the others written for the Institute, or indeed prepared on this topic either here or in the US these past few years, is the hypothesis that technological innovation is causing pressure for competition. This statement appears time and time again. This is both an over-simplification of the situation, and an overstatement. It has become such a cliché that almost all papers on this topic either begin or end with it. The truth of it is that while the technologies do change, the issue for us remains the same. The issues are political issues, they are jurisdictional issues and they have little or nothing to do with technological advancements.

Some people believe that all squabbling in this area will end if telecommunications in Canada is regulated by only one body. This is wishful thinking. By its very nature, in that it crosses provincial boundaries, telecommunications sets up a situation for conflict that is much more than politicians merely protecting their territory.

The historical reasons for the prairie provinces establishing their own telephone companies more than 75 years ago, remain today the heart of the issue. Simply put, universal availability of the telephone to all Saskatchewan residents has been viewed by various governments of all political stripes as a necessary goal. It was, and still is, regarded as a necessary requirement for social, cultural and economic reasons. In a province of one million people spread out over 652,000 square kilometers, that include 67,320 farms and 859 communities, achieving universality is an expensive proposition. Our telephone company, provides at some considerable cost, service to some 25,000 people living in the far north, an area that comprises 50 percent of our land area.

Our telephone company relies heavily on toll revenues for contributions to local basic telephone service. Sasktel's toll revenues in 1983 made up 65.5 percent of its total operating revenues.

But enough of this economic tic-tac-toe. This whole topic is suffering from too much of it already. Politicians have a knack for cutting through all this economic tar paper and zeroing in on the simple question: Is it in the public interest to introduce new actors in the telecom business?

Too much of the argument in this area has been driven by economists. While not discounting the importance of economic factors, it must be recognized that telephone service to the people of my province is much more than an economic phenomenon. It has a social and cultural dimension. Hence, my government's concern for the danger to universal service. This concern, incidentally, should also apply to provincial governments including those which have no stake in either owning, or regulating a telephone company. The people who are the customers of the private telephone companies, are the very same people the politicans have as constituents.

We, of course, in Saskatchewan have different expectations from our shareholders than say Bell Canada or BC Tel. This difference requires extensive study. What we need the economists to prove to us, is what the benefits will be, and where they will be. Otherwise, how do you expect my Minister to explain to an elderly, marginal farmer in Indian Head, Saskatchewan, not to worry about paying more for his phone, that he'll get it back in "consumer surplus".

Another recurring theme in papers on this subject is that of making the telephone the object of government welfare for those of limited means; those who can't afford to pay a dramatically increased basic rate. This service might well be labelled the "Welephone proposal". The proposal appears in a number of papers. It is just not an acceptable idea for several reasons in Saskatchewan.

Are governments under the "Welephone" proposal subsidizing telcos, or the telephone subscribers? If you turn telephone companies into welfare organizations, do you in turn end up having the regulatory bodies doing social service work by determining policy on these rates? Will this imply for some people having a means test in order to have a telephone in their home? Do we create a new category of second class citizens? I must say here that is is not the Canadian tradition to "beggar thy neighbour". Would we turn our telephone companies into a welfare service just to satisfy the needs of something cloaked in the title "competition"? Let's not add the stigma of welfare telephone to our list.

Then there are those economists who play the numbers game, trying to prove by some formula how many homes would lose their telephones if total rebalancing were effected. It reminds me of the Pentagon playing war games, attempting to prove, without actual testing, that only one million people will be killed on the eastern US seaboard in an all-out nuclear attack. The practical matter to a politician is that it is unimportant whether it is 100 or 1,000 people who lose their telephone life line.

It strikes me that the economists are unable to say these things with such precision. There are a lot of ifs, ands, and buts in all of these papers. A lot of dice are being thrown, and this is too important an issue for my province, for Canada, for a crap game.

Let me move from snapping at the heels of economists and outline some of our major concerns with regard to this whole competition question and its likely impacts on Saskatchewan. I have already outlined to you the enormous cost to the people of Saskatchewan to provide its telecommunications services to the whole province. Well, we have also taken a giant leap into the next century with our 3,400 km fibre optic system, and with our Agritex service to the agricultural community. If we look to the future of telecom and all the marvels we are told it will bring right into our homes, such as home shopping, information, banking, etc., you realize that these services will only be available to those connected with the telephone network. The poor, or those on limited incomes, will be denied access to them if they're not plugged in.

We may well end up where "competition" only exacerbates regional disparities. Politicians in those regions will not be prepared to allow this to happen. I don't think we will allow to happen in Canada that which took place in the US in that governments there appeared unable, or unprepared to take action on de-regulation.

In the Woodrow and Woodside paper, it concludes that neither level of government in Canada was prepared to make compromises to reach agreement, or see the courts decide the matter for them.

I admit that for the past decade all has not been sweetness and light in the various camps, but do not discount the Federal-Provincial paper on Joint Regulatory Mechanisms, which was a serious attempt by all of us to come to grips with the thorny problems of regulation. That paper still stands and is still a strong possibility. Perhaps it merits a revisit.

But before revisiting anything, I think governments seriously have to ask themselves these questions: Is big business really in favour of competition in telecommunications, or does it want reduced toll rates? If it is the latter, we don't have to restructure a multi-billion dollar industry to achieve this.

Winners and Losers: The Challenges Facing Telecommunications Regulation

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Introduction

Looking back at 1984 Canadian telecommunications regulators and policy-makers will no doubt agree with Charles Dickens: "It was the best of times, it was the worst of times."

On the one hand, with the growing convergence of computer and telecommunications technology there was a blossoming of new applications and opportunities, on the other the quicksilver nature of the technology caused long established industry boundaries to blur and even disappear thereby undermining the ability of regulators and policy-makers to respond.[1] As well, 1984 brought into focus a profound regulatory conundrum – how will it be possible to introduce substantial competition into the provision of telecommunications services without compromising the goal of universal service at affordable rates?

The year 1984 was also one of mixed blessings for the public policy researcher. On the one hand, it was a time of rapid and exciting developments, on the other a time during which, whenever a deadline was fixed, there was always the promise of much better data just around the corner. There was the prospect of more exact estimates of the impact of competition on telephone company revenues as a result of CRTC interrogatories in the interexchange proceedings, the first ever Canadian study of the impact of competition on universal service along the lines of the two Perl studies in the United States was imminent and a whole series of FCC studies insisted upon by Congress were to be available by year's end. It would indeed seem that, "Any attempt to identify the constituent forces of the information economy is more akin to tracking a motion picture than describing a photograph."[2]

The Premises Adopted

It would be well at the outset to acknowledge that this study is based on two major premises. The first is that there will be growing competition in the provision of telecommunications services in Canada. This does not involve any assumptions as to the exact nature or extent of such competition. As the Charles River Associates report put it, "... the real policy question in this complicated rapidly changing, technologically fascinating industry is not so much whether competition will reign, but rather in what form and how quickly."[3]

The second premise is that this move towards greater competition cannot be accomplished without disrupting a substantial cross-subsidy between long distance and local exchange service. Richard Schultz was surely right in his evidence before the Board of Commissioners of Public Utilities of New Brunswick when he concluded, "It is widely, indeed almost unanimously, agreed, that the present pricing system, as found in every Canadian jurisdiction ... incorporates within it a complex system of cross-subsidies or 'contributions'."[4] In face of this near unanimity it would be unrealistic to start with any other premise, although it must be recognized that there are those who have questioned the accuracy of this premise.[5] As well, the size of any such cross-subsidy remains as controversial as ever.[6]

Some Possible Preliminary Objections

It would also be well, at the outset, to deal with a number of preliminary objections which might be raised against any claim to profundity. It might be suggested that all that is involved are short term transitional adjustments on the road from monopoly to competition. Alternatively, reference might be made to massive increases in oil, gas and electrical prices to suggest that Canadians will readily absorb any residential rate increases which may accompany any shift towards competition. Moreover, it might be argued that effective limits could be placed on any further moves towards competition thereby dissolving the self-imposed regulatory conundrum. Finally, it might be urged that the forces of information technology are largely beyond regulatory control and that regulators and policy-makers will soon be reduced to endorsing, rather than determining, the direction and rate of change.

In a sense, of course, our concern is with a transition in view of the premise that some degree of competition in telecommunications is inevitable. However, it would be to trivialize the nature of the required change to characterize it as a matter of merely short-term transitional adjustments. Later sections of this paper will explore the massive financial implications of any move towards greater competition. Here it is proposed to outline the basic pricing philosophy adopted in telecommunications and to indicate just how inconsistent it is with the basis on which prices are set in a competitive business environment.

Two basic pricing principles are used in telecommunications, value of service pricing and system-wide price averaging.[7] In value of service pricing, price is based on the estimated value of the service being provided and not directly on the cost of providing the service. In pricing local exchange service, for example, value is determined by the number of phones which may be reached on a flat rate basis. Thus a relatively lower basic rate is charged where only a small number of telephones may be reached without long distance charges. Higher basic rates are charged in large centres where a greater number of telephones may be reached without a long distance charge. The traditional spread between the rates charged for business and residence service is also based on value of service pricing because the value of a telephone to a business customer is considered to be greater than the value to a residential subscriber.

Complementing value of service pricing is the principle of system-wide price averaging where similar rates are charged for similar services regardless of cost. For example, in the case of exchange service, customers in all exchanges of similar size pay the same monthly rate for basic service irrespective of the fact that it may be more costly to provide service in one exchange than in another. In the case of long distance service, rates are uniformly applied according to distance. Again, this type of average pricing does not directly reflect the fact that it may be more costly to provision circuits on one route than another even though the distance is similar.

The common feature of these two pricing principles is that cost is not pre-eminent. This is not to say that cost is ignored – indeed in recent years companies such as Bell Canada have made it clear that they intend to place more emphasis on cost than in the past.[8] Nevertheless, the concern for cost is always at a macro, not micro level. The concern is with overall costs and not particular costs. As Fred Waller has explained,

> System-wide pricing does not recognize specific costs of any particular class of service. This does not mean that the rate-making process ignores costs. Total costs must be recovered and relative costs of similar services must also be recognized. But these relative costs are more a matter of knowledge and judgment than of precise measurement.[9]

System-wide pricing is predicated upon an acceptance of telephone service as one, single, completely integrated service which cannot be fragmented into separate exchange, long distance, business or residential services. Under these circumstances, selective entry by competitors immediately threatens the whole basis on which service is provided. So potentially catastrophic is *any* breach of system integrity seen to be, that N.B. Tel, for example, has recently stated that even limited competition will require a *complete* revision of rates to reflect costs as "... any attempt to only partially open the floodgates is foredoomed...."[10]

In view of this fundamental inconsistency between system-wide pricing and cost-based pricing, any shift to competition will call for far more than mere short-term transitional adjustments.

But even if the rate restructuring called for by the advent of competition were to lead to substantial increases in local rates, might not such increases be accepted with as little sustained protest as have other similar increases? Who now even remembers that a federal election was fought and won on a promise of an 18 cent limit on any gasoline price increase?

There would appear to be three distinguishing features which mark telephony off from other public utilities. First, there will be an appearance of inequality as it is likely that in any major rate restructuring, large corporate users of telecommunications services will obtain substantial savings in long distance calling while many residential subscribers will pay more for local service with only some benefitting from lower long distance rates. Unlike other instances of new competition, such as in the airline industry, the immediate impact will be substantial increases for most subscribers with immediate benefits only for those who might be thought to be the least deserving.

Second, the very success of traditional telephone pricing practices has created a popular feeling of entitlement to affordable flat rate local telephone service. As Alfred Kahn has noted:

> A further impediment to any rational solution is the widespread popular belief that if something is regulated

> it can defy the principles of economics. The same people who are willing to pay $15-$25 per month for cable TV, Home Box Office, and the like seem to regard a $6-$10 rate for unlimited local calling as a God-given right. And people buying a newly built $70,000 home regard it as heinous if they are required to pay the $150 or more that it costs to put a telephone in it.[11]

Somewhat belatedly, the telephone companies have discovered that value of service and system-wide pricing could amount to a non-governmental welfare system. As Bell Canada was to explain in its *Memorandum of Evidence on Interexchange Competition* in April, 1984, "The existing rate levels for local and long distance services have in fact become a means of redistributing income from users of long distance services to users of local services."[12] Or as BC Tel complained in its submission, "In short, a system of 'winners and losers' has been created and the telephone company has become, in some instances, a vehicle for realizing social goals."[13] In the current political climate, in which all three major federal parties seek to outdo each other in their expressions of fidelity to social programs while at the same time expressing concern about the deficit, "taxation by regulation", which provides a subsidy without a budget entry, will be very politically attractive.[14] Like governments, the telephone companies will find it hard to bail out of a subsidy program.

Third, any substantial rate increase which might be seen as even raising a possibility that some persons might drop off the network, is likely to have considerable political repercussions. Basic telephone service will no doubt be characterized as an absolute necessity in the emerging "information society".

It is thus apparent that increases in local telephone rates will not be accepted nearly as readily as have other increases in the cost of living.

Might it not be possible to avoid all these problems by simply restricting any further competition? However, even if this were to be done, there will still be pressure for "rate rebalancing" in Canada. "In its simplest definition", BC Tel has explained, "rate rebalancing means moving prices closer to costs."[15] It is very clear from the evidence of both that company and Bell Canada in the CRTC interexchange proceedings,[16] that rate rebalancing will have to take place *regardless of any decision with respect to further competition*. This reflects something quite new in Canadian telecommunications regulation and brings us to the fourth and final preliminary objection.

It has been suggested that the forces of information technology are largely beyond regulatory control.[17] The thrust of this determinist position has been well captured by Edmund Fitzgerald, Chairman of Northern Telecom, in remarks to the Federal Communications Bar Association in Washington.

> The current political thrust at both state and federal levels is to delay or defuse the prospect for increased residential charges which would fairly reflect the cost of local service.
>
> I fully understand the political forces at work. But I question whether the public, and the state and federal authorities which answer to it, fully recognizes the technological and economic imperatives facing this nation and its telecommunications industry.[18]

Recognition of such "technological and economic imperatives" may, in fact, be seen in the United States,[19] but in Canada it always seems to be assumed that regulatory fiat is omnipotent. However, more recently there appears to be recognition that there are indeed limits to the extent that regulation may hold back the floodtides of economics and technology and require would-be entrants to ignore economic incentives and technological opportunities. This explains why the major telephone companies believe that there has to be rate rebalancing even should no new competition be authorized. Their concern is that the present pricing structure will act as an irresistible inducement to competition whether authorized or not. Thus in evaluating the possible impact of bypass technology and the opportunity for large corporations to circumvent local telephone companies and their high rates, Bell Canada has made it clear that it is not prepared to trust in the ability of government to restrict competition.

> As technological opportunities and consumer awareness of these opportunities continue to expand, it will become increasingly difficult for the Company, and for policy-makers in government, to restrict the application of bypass technologies. There have been instances in the recent past where government communications policies have been defied. The case of satellite earth stations is an example. The development of smaller, less expensive dishes created a demand for their use, first in remote parts of the country then virtually across the country. The use of unauthorized dishes proliferated thus making

> government action to prevent their use very difficult. The result was a change in policy regarding ownership.
>
> The tendency for events to lead government policy was experienced in the United States in the development of competition for both long distance and local services. The American experience shows that business will make decisions based on lowest cost alternatives. New low cost technology provides customers both toll and local bypass alternatives. As long as the rates for some services remain substantially above costs, uneconomic bypass will be encouraged.[20]

And as BC Tel has frankly acknowledged, "In the long term, technology and other market forces will determine the nature and scope of telecommunications in Canada."[21]

This is not to say, of course, that policy makers must simply follow the path of least resistance and abjectly succumb to technological determinism. But it does mean that naive expectations of regulation as a cure-all will have to be abandoned and that regulators themselves will have to seek solutions which channel and direct rather than dam the new technological and economic "imperatives".

Relevance of American Experience

This study will draw to a great extent on recent American experience with competition in telecommunications. It is thus necessary, at the outset, to address the question of the relevance of this experience to Canada. While it will not be suggested that American solutions should necessarily be adopted, it is this paper's thesis that the opportunities and problems which have surfaced in the United States will be very similar to those which will have to be faced in Canada in the next decade.

Support for this thesis is found first, in the general similarity in the provision of telecommunications services in the two countries; second, in the fact that competition is emerging in countries other than the United States; third, in the extent to which this shift to competition is being made as a result of common technological developments and not as a result of unique ideological commitments; fourth, in the extent to which Canada has already moved to adopt competitive, rather than regulatory solutions and fifth, in the virtual irrelevance of national boundaries in an electronic era.

Despite some important differences, of which the lack of an equivalent of AT&T Long Lines and a genuinely national market are the most obvious, telecommunications services have been largely provided on a similar basis in the two countries. While Canada does, of course, have significant government ownership, the vast bulk of services are provided by shareholder companies which operate in an environment which is growing more and more competitive.[22] By contrast, in Europe (Britain excluded), government departments of Post, Telegraph and Telephone (PTT) are first and foremost public services operated on a monopoly basis for the general good.

In the face of possible competition, the PTT's in Europe are counting on technological progress to help them maintain their monopolies. They argue that once phone networks have been fully converted to multifunction digital systems, they will operate like public highways, carrying any type of information. Thus they are working as fast as they can to develop the Integrated Services Digital Network.[23]

As Marino Benedetti of the Italian PTT (STET) has explained, while European governments (Britain excluded) are simply not prepared to give up on the principle of state monopolies, they are prepared for change. Basic services, new services such as mobile cellular radio and teleconferencing, and public information services such as videotex and yellow pages, will continue to be provided on a monopoly basis. "The qualifying point, however, is that such services are to be organized and operated in a dynamic and highly efficient way with due consideration given to the needs of the market place."[24] As well, there will be "liberalization" or deregulation of the terminal equipment market and "open competition" for software products and value added activities that are linked to a public data transmission network.

Despite these important developments and the nod towards marketplace dynamics and efficiency, the primary response of the PTT's is to insist on something very close to a monopoly. It is interesting to contrast this response to that of Bell Canada. A careful reading of that company's submissions to the CRTC's interexchange competition hearings leads to the conclusion that it is responding to the "threat" of competition in much the same way as have other privately owned North American telephone companies. The opposition is not to competition as such, but to "unfair" competition in which competitors may pick and choose where to enter and the regulated company is not allowed to respond by bringing its rates down to cost. It is on this issue, and not on competition as such, that Bell Canada has taken its stand. While it is not obvious to Bell Canada that there is any need for additional message toll suppliers in Canada, it reserves its heavy artillery for competition without any opportunity for rate rebalancing.

> Bell Canada would be seriously concerned about the inherent unfairness of opening artificial business opportunities arising from imbalance in the rate structure developed under existing regulatory rules to the detriment of the Company. In Bell Canada's respectful submission fundamental fairness requires that the Company be allowed to adjust to the new environment before other parties are allowed to enter the market under a new set of rules.[25]

The government owned telephone companies have so far been far less flexible than Bell Canada.[26] However, unlike the European PTT's, these companies do not appear to be in a position to adopt a positive protective stance by way of massive investment in an Integrated Services Digital Network.[27] Thus the overall response of the Canadian carriers is not going to be very much different from that in the United States – vigorous resistance in the regulatory arena by way of a rear guard action while at the same time reorganizing, retraining and redeploying to meet competition.

Significantly, competition has not only emerged in the United States (which along with Canada has long had an element of competition) but in other countries such as Britain and Japan where essentially PTT approaches have been traditionally employed. In Britain, not only has Mercury been allowed in as a competitive carrier,[28] but British Telecom, itself but recently carved out of the Post Office, has been turned into a private company.[29] Given the traditional close ties between government and industry, it is particularly striking to read how Hisashi Shinto, President of Nippon Telegraph & Telephone Public Corporation (NTT) envisages the future for Japanese telecommunications.

> The telecommunications business in Japan is undergoing marked changes in line with – and shaped by – the great progress in communications and computer technologies. Similar to examples seen in other advanced countries, it is likely that, because of improvements in optical communications technology, telephone services will be increasingly integrated with such diversified, digital-based services as facsimile, visual communications, and

> others. Further, the public demand for diversified telecommunications is also expanding rapidly.
>
> Aware of these circumstances, the Second Ad Hoc Commission on Administrative Reform initiated comprehensive studies in 1981 and submitted its recommendations to the Japanese Government in July 1982. Following a fundamental review of the telecommunications business in Japan, the official report suggested a restructuring of NTT which focused on its transformation to private enterprise and the introduction of competition.[30]
>
> Great progress in such leading-edge technologies as those involved in digital systems, fiber optics and satellite communications has enabled the construction of networks that perform more functions at lower cost. It is becoming increasingly feasible for private companies to provide basic telecommunications services, such as main trunk lines, previously regarded as the domain of a "natural" monopoly. In recent years the unsuitability of the traditional regulatory system for rapid responses to such structural changes affecting the telecommunications industry has become a source of social concern.
>
> To help resolve this difficulty, the use of data communications circuits was deregulated in October 1982, and the Second Ad Hoc Committee on Administrative Reform . . . recommended that NTT be transformed into a private company and that telecommunications services, even such basic services as the provision of main trunk lines, be made competitive. The restructuring of NTT in accordance with the new social consensus parallels similar changes in other advanced nations such as the divestiture of AT&T and a movement to make British Telecom a private enterprise in a competitive market.[31]

As Shinto suggests, change in telecommunications is largely technology driven and competition is a response to demand that this has generated for widely diversified telecommunications services. Moreover, as Manley Irwin has pointed out, "Over the long term, technology acts to subvert regulatory authority and the relevance of quiet due process."[32] Regulation calls for stable classifications, rigid categories, predictable boundaries and fixed definitions while the explosive convergence of microchip technology and telecommunications is leading to rapidly changing definitions, boundary line decay and product fusion.[33]

The role of technology in bringing about change is particularly important given different overall atitudes towards competition in Canada and the United States. As Richard Schultz has noted, it is most important to bear in mind the differing overall contexts in which the particular issue of competition in telecommunications must be set.

> At a general level, Canadians and their governments are less willing to rely on, or trust, the competitive marketplace to achieve particular goals. There are both functional and philosophical reasons for this. In part it reflects a belief that the Canadian marketplace is neither large enough, nor strong enough, particularly vis-a-vis that of the United States, to rely on competition. In part, our more limited reliance on markets and our stronger roles for governments reflect, if not a rejection, at least a tempering of the values or goals that marketplace competition represents.[34]

This difference in general has been carried over in particular attitudes towards the role of competition in the provision of telecommunications services. Consider, for example, the assumptions of Judge Greene in his historic AT&T divestiture opinion.

> Competition has not been endorsed by the Congress and the courts as a purely academic matter. The need to safeguard free competition is a direct result of the fundamental premise of our economic system that unrestrained interaction of competitive forces will yield the best allocation of our economic resources, the lowest prices, the highest quality and the greatest material progress, while at the same time providing an environment conducive to the preservation of our democratic political and social institutions.[35]

While he did go on to note that, "other factors were not irrelevant" to his determination, and that, "other important public policies" had to be taken into account, his decision, when read as a whole, is a paean of praise to the benefits to the public of marketplace solutions. Compare this with the views of John Meisel, a former chairman of the CRTC.

> The US is now experiencing a wave of deregulatory fervour which, although less all-embracing than is sometimes claimed, is certainly serious. It has led the

> Federal Communications Commission and other regulatory agencies to relax or completely abandon some of their former customary activities. While it is too soon to speak of the results of this policy, it is plain that it is not applicable in a Canadian context. In this country, we have always tempered the desire for economic prosperity with a broad, public concern for the achievement of political and social ends. These, over the long haul, have held firm and our economic successes have been traditionally marshalled in their service. This fact is responsible in a very large measure for our survival as a country over a period in which the great majority of nation states have faltered and failed. More importantly, I think it has enabled us to fashion a society that rests on a shared sense of decency and moral principle and that, whatever its faults, has attempted to engrain justice and humanity into its social organization.[36]

And as John Lawrence, Vice-Chairman Telecommunications, at the CRTC has noted "... Canadians have traditionally been, to a very much larger extent than our American cousins, pragmatists. United States policy determinations are much more often propelled by ideology than has been the case in Canada."[37]

Despite these contrasts, the gap in practice is not as wide as that in rhetoric. The extent of the current Canadian commitment to competition in telecommunications may be seen very clearly in a major policy statement by Communications Minister Francis Fox on May 26, 1983.

> During the next two years, we intend to conduct a full-scale review of telecommunications policy with the aim of ensuring that it promotes competition in the provision of services and provides opportunities for product innovation in Canadian industry. In recent years, government policy has steadily expanded the degree of competition in telecommunications services....
>
> Depending on the nature of the changes which occur in the telecommunications industry as a result of increasing competition, it may even be possible to dispense with regulation in some service areas.[38]

However it should be noted that Fox spoke of "re-regulation" and not "deregulation" and urged that emphasis must be placed on making the regulatory process work more efficiently and not on eliminating public oversight.[39] Ideological posturing notwithstanding, the two countries are not that far apart. At the very least, it may be said that differences are a matter of degree and not of kind. This cannot be said of the differences between continental European PTT's and American developments.

It is not as much unique ideology as common technology which is forcing change. As Sir George Jefferson, chairman of British Telecom, has put it, "Changes in policy are driven very much by the pace of technology in the marketplace."[40] As a result, some competition seems inevitable, outside, that is, of authoritarian societies.

It is, of course, important to bear in mind how technology comes to be applied in practice. The impact of new technology comes about through adoption, not by the mere fact of its creation. As will be discussed later, it appears that the driving force for the adoption of new technology has come largely from the business community, especially multinational companies. Given the extent of foreign investment in Canada, and given the immediate proximity of applied examples of the new technology, is there any reason to believe that the same forces will not be at work in this country? Jack Harvey of Telecom Canada pointed this out when speaking of the significant developments which have been fostered by the rapid emergence of technology.

> These developments have come mainly in the US, and they have influenced the way business has been conducted there, but there has been a tremendous spillover from the US into Canada. In fact, these forces are almost irresistible. When something happens in the US, you can pretty well bet that it is going to happen, and usually not too much later, in Canada.[41]

Two considerations might well delay, and even possibly dilute, this force for change. But they are unlikely to change it fundamentally.

First, business users and would-be service providers would appear to have been relatively less aggressive in Canada than in the US. Consider the extraordinary birth of MCI, the first major long distance competitor of AT&T. "In order to obtain permission to construct a microwave system which cost $2 million and took 7 months to complete, MCI spent $10 million in regulatory and legal costs and waited 7 years."[42] Yet that $12 million dollar investment has been parlayed into a company which now has two million subscribers and annual earnings of $1.5 billion. Perhaps this difference demonstrates that Canadian business is not as willing to act on the assumption that it is easier to obtain forgiveness than it is to obtain permission although "pirate" satellite TV and cross-border reseller activities might indicate that where the initial investment is low and there is no immediate evidence of anti-social consequences, restrictive regulation will be defied even by Canadians. Then too, Canadian reticence may have been caused by concentration of ownership and interlocking boards of directors between the telephone companies and potential supporters of competition. Perhaps all that it reflects is the less stridently demonstrative nature of the Canadian national character.

The other potential dampener is government, whether through ownership of the prairie telephone companies or by way of concern for national sovereignty[43] and the need for a "critical mass" to make successful competition possible in the international telecommunications market.[44] While a less demanding business community, and the anxious interventions of government, will, no doubt, slow the rate of change, growing corporate pressure fueled by the demonstration effect of developments to the south, especially when couched in terms of improved efficiency and ability to compete internationally, will prove decisive in the long run.

Thus far competition has come to Canada on an incremental, ad hoc basis. As the Economic Council of Canada noted, the introduction of competition has been somewhat slow and hesitant and what is needed is a bolder and broader approach.

> The present approach of the CRTC emphasizes the uniqueness of particular situations. There is a need to recognize the basic similarity in the variables affecting the public interest in different situations. Besides adding to uncertainty, the present approach taxes the resources of the CRTC and greatly increases the costs of the regulatory process to individual participants. We believe that there is an insufficient appreciation of these costs and of the corresponding savings that could be achieved by a greater reliance on broad rule-making.[45]

In light of this criticism it should be noted that the CRTC proposes to deal with the CNCP application (to compete with the telephone companies in the provision of long distance services) by way of a "general issue proceeding."

> While it is intended that this proceeding will lead to the disposition of the specific applications before the Commission, it is anticipated that it will be possible at

> the same time to develop a more general regulatory policy regarding interexchange competition. In so doing, it will be the Commission's objective to reduce future uncertainty regarding the federal regulatory response to competitive initiatives and to minimize regulatory costs and delays associated with the processing of individual applications for competitive entry.[46]

Despite the lack of a clear "general regulatory policy" regarding competition, when individual CRTC decisions and current developments are cumulated, it is apparent that a major change has already taken place in the Canadian telecommunications industry.

Major pro-competitive decisions have been concerned with system interconnection[47] and terminal attachment.[48] Only cabinet imposed limits on possible competition between satellite and terrestrial transmission have thwarted further moves towards competition.[49] Yet even here the announcement that all restrictions on ownership of satellite transmit earth stations will be lifted on April 1, 1986 will create a more competitive environment in which large business users will be able to apply for licences to operate their own uplink facilities.[50]

Other current developments include the continued ambitions of the cable companies to break out of the confines of non-programming "bells and whistles" and to enter into direct competition with the telephone companies;[51] the decision by the Department of Communications to emulate American developments and allow some competition in cellular mobile radio;[52] the new link-up between MCI and Telecom Canada[53] and "poaching" by Teleglobe Canada in the domestic market.[54]

None of these developments can compare with the divestiture of AT&T. Though undoubtedly significant, the Bell Canada reorganization is but a faint northern echo of what is going on in the United States.[55] It is important to note that it is the advent of competition and the threat of bypass, not divestiture, which has put such immediate pressure on residential rates in the United States. Thus there is no room for complacence in Canada simply because we have not embarked on any massive structural change. Indeed, structural change may be required here as well, for as Francis Fox noted, "The introduction of more competition in the provision of communications products and services will have important implications for the structure of the telecommunications industry. In order to ensure fair competition and prevent hidden subsidies, it may be necessary to require that competitive and non-competitive services be provided by different organizations."[56] And, as if to fulfill his own prophesy, Fox has required that cellular mobile radio services be provided not directly by Bell Canada but by a subsidiary of Bell Canada Enterprises.[57]

There is a tendency to presume that competition in telecommunications is an American innovation which is being "imported" into Canada.[58] While it is, of course, true that competition has been carried much further in the US, Canada has had a long history of rivalry between the telegraph company predecessors to CNCP Telecommunications and the telephone companies. Unlike Western Union in the US, which until very recently withdrew entirely into the declining telegraph business, CNCP has been active in many facets of telecommunications including switched public teleprinter network communications, data transmission and private line voice.[59] Indeed, the basis for competition in long distance voice communications was laid almost twenty years ago when CNCP was authorized to build a coast-to-coast microwave link.

This brings us to the fifth and final reason why developments in the United States will have such an impact in Canada—the virtual irrelevance of national boundaries in an electronic era. Not only will there be the demonstration effect with its demand for equivalent rates and services, but the border itself will prove to be entirely porous. As Peter Grant has pointed out, if Canadian carriers fail to bring their rates and services into line with those in the United States, they will do so at their peril.

> The Canadian carriers will have to be responsive to user demand (for resale or discount services) in order to supplant what would otherwise be leakage in the system. I think that what may well happen in the next few years is that the Canadian carriers will finally begin to countenance user demands because they will come to realize that if they do not do so they will have to face a technological Armageddon from satellite and other carriers in the United States who will be able to leak into the system in unpoliceable ways.[60]

Conversely, it will become relatively easy to access American carriers and even call cross-country via US circuits. "Cross-border resellers" such as Cam-Net and Longnet are seen as presenting an immediate threat by BC Tel. As a short term response that company has sought to interdict access numbers, but rates more competitive with those across the border hold out the only longer term solution.

Developments in the United States

Before plunging into details of these ongoing developments, a brief overview of the battlefield might be in order. In August, 1982, Judge Greene gave the go ahead to the divestiture of AT&T, a development designed to give considerable additional impetus to competition in telecommunications by way of a major restructuring of the industry. At this stage it seems to have been assumed that the interests of small business and residential subscribers could be protected by way of an access charge placed on competitive long distance carriers seeking access to local switched networks. Thus, whatever was lost by way of a cross-subsidy between AT&T Longlines and the old Bell Operating Companies, would be replaced by charges levied against the competing long distance carriers (AT&T, MCI, GTE Sprint, etc.) for use of the switched distribution systems of the local companies. This, as we shall see, was the arrangement approved by Judge Greene. What might be lost on the cross-subsidy swings would be made up on the local network access charges roundabout.

However, such is the rate of technological innovation (or more importantly, the rate of user adoption of new technology) that by late 1982 it was apparent that new technologies could be employed by large users of telecommunications services to bypass local switched networks. As a result, access to network charges would have to be relatively modest in order not to provoke uneconomic bypass and could no longer be relied upon to replace the massive subsidies (possibly as large as $11 billion a year) previously provided under a monopoly regime employing system-wide pricing. The local companies thus faced a substantial revenue shortfall. The solution adopted by the FCC was to require a monthly charge on all subscribers to cover the fixed costs of providing access to long distance. Such was to be the strength of the protest against this proposal that the FCC was forced to delay the implementation of a $2 per line per month access charge on residential phones and a $6 per line per month access charge on single-line business phones until June, 1985.

It should be a matter of some concern (as will be discussed later) that the elected branch of government has not been directly involved in setting out the ground rules for the information age. However, the size of the increases mandated for *all* telephone subscribers, rumours of massive rate increases being sought from state regulators, and the imminence of the November elections, propelled this issue to the centre stage of politics. As Representative Markey observed at the outset of the Joint Hearings of the Senate Committee on Commerce, Science and Transportation and the House Committee on Energy and Commerce held in July, 1983, a total of no less than 13 major bills on universal telephone service had been introduced. Why, he asked, was there this generous "legislative bounty" in place of earlier indifference?

> I think that the change is a response to a perceived national crisis, the threat that millions of Americans, urban and rural, might lose one of modern life's most basic necessities, the telephone. Many in Congress, myself included, believe that such a prospect would result in the most serious of consequences, the creation of an information aristocracy and an information underclass in our society.[61]

As he recognized, the debate, far from being a narrow technical one of interest only to telecommunications technocrats, is of a broad ranging, highly politically charged nature. Consider, as an example of the tone of the debate, the following observations of Representative Wyden.

> Before I came to the Congress, I was director of the Gray Panthers for several years, and I have never seen the senior citizens as frightened as they are today about the prospect of huge hikes in their telephone service.
>
> Millions of senior citizens are walking on an economic tightrope, balancing their food against their fuel, their fuel against their medical costs. If telephone rates go up abruptly, they could literally be pushed off that economic tightrope.
>
> I do not think that Congress wants to stand by and watch while senior citizens are forced to pit one necessity against another.
>
> * * *
>
> Frankly, Mr. Chairman, I do not want to see a society where some people in this country have access to micro-optics and the senior citizens will not be able to afford a telephone to call their doctor. So that is why I believe Congress ought to proceed with the corrective legislation . . . and I look forward to moving this legislation at the earliest possible opportunity.[62]

By the fall of 1983 a number of bills had been introduced in the House and the Senate in an attempt to control or "tax" any bypass of local telephone companies, continue subsidies to local exchange rates from long distance revenues and abolish or defer the FCC plan for access charges.[63] The key bill in the Senate was S.1660, the *Universal Telephone Service Preservation Act of 1983* introduced by Senator Robert Packwood. It would have deferred access charges until January 1, 1986 and would have established the Universal Telephone Service Joint Board to devise a system of surcharges on interexchange carriers in order to maintain universal service. As well, it would have set up a High Cost Fund designed to reimburse small rural carriers if their costs exceeded 110 percent of the national average and a Universal Telephone Service Lifeline Fund to help defray the costs of lifeline services. Bill S.1660 was approved by the Full Senate Commerce Committee on September 30, 1983.

The key bill in the House was H.R. 4102 introduced by Representative John Dingell. It would have created a Universal Service Fund by way of surcharges on interexchange carriers to provide payments to both high cost areas and to companies providing lifeline telephone service. As well, it provided for enhanced public participation by authorizing the FCC to provide financial assistance to public interest representatives and for the creation of non-profit state organizations of residential telephone consumers. Bill H.R. 4102 passed in the House of Representatives on November 10, 1983.

In the face of this opposition, and following receipt of a letter signed by 32 US Senators, the FCC beat a strategic retreat. It agreed to delay the access charges until June, 1985 and to undertake:

- A further rulemaking to devise exemptions or target assistance for subscribers who may not be able to afford end user charges;
- A further inquiry into the effects upon universal service of end-user charges;
- A further inquiry to compile more detailed data on the extent and dangers of bypass;
- A further rulemaking to adopt more effective mechanisms to meet the needs of smaller telephone companies for more assistance;
- A further rulemaking to examine how best to implement an end-user charge for residential and single-line business customers.

Why has there been such an outcry? As FCC Chairman Mark Fowler somewhat petulantly observed, he for one just could not understand why a $2 a month or 7 cents per day charge should be so unpopular.[64] Yet, of course, what the FCC was doing was far more far reaching and the access charge issue has been really only an irritant and symbol. What the FCC in fact proposed to do was to completely rewrite the regulatory philosophy which had governed the provision of telecommunications services in the United States. It also proposed to turn residential telephone users from winners to losers.

Traditional Approach to Pricing Long Distance

As explained at the outset of this study, telephone company pricing has traditionally not been directly related to cost. When a value of service approach was adopted for long distance rates a wide gap began to appear between cost and price with the development of microwave and satellite transmission facilities.[65] No such new technologies with similarly dramatic cost saving characteristics were available for local service. When long distance service was provided on a monopoly basis, the interest of the telephone companies was to keep local rates low in order to maximize the number of subscribers on the system and thus its value. The regulators – particularly state regulators – were concerned to avoid adverse political reaction to increases in local rates. Given this congruence of interest, it was possible for the telephone companies, the state regulators and the FCC to devise a means of distributing long distance earnings in such a way as to keep local rates low.

As Alan Pearce explained in evidence before the Board of Commissioners of Public Utilities of New Brunswick:

> Studies are undertaken to determine what percentage of user calls fall into each category of service. The last study, in 1981, showed that on average 7.9 percent of all calls (based on holding time minutes of use) are interstate toll calls. Under today's formulas, however, interstate, with a 7.9 percent relative usage factor, or SLU (Subscriber Line Usage), is "burdened" with a multiplier factor of 3.3 (known as SPF or Subscriber Plant Factor), so that interstate carries approximately 26 percent or $26.07 of every $100 investment in its revenue requirement.[66]

The results of this Separations and Settlement Process would appear to have been nothing short of spectacular. The average monthly cost of providing telephone service to a Bell System subscriber in 1981 was said to be $26. The average price charged to the subscriber for basic telephone service was $9.16 a month. The difference, almost $17 a month came mostly from cross-subsidies from long distance calling. Moreover, wide variations from the nationwide average occur among states and telephone exchanges. For example, the average subscriber line cost in Nevada was $42. All in all, it is estimated that the cross-subsidy amounts to some $11 billion annually.[67]

Problems with Cross-Subsidies

With the benefit of hindsight it is easy to see that this pricing system carried within it the seeds of its own destruction. Wide departures from costs acted as powerful inducements to competitive entry much of which might not be economically justified. As the Charles River Associates report pointed out, "Since current long distance rates seemingly exceed direct costs by a substantial margin, lowering toll charges should improve static resource allocation and reduce the probability of uneconomic entry."[68]

As well, artificially low local rates sent consumers misleading signals. The suggestion of "free" calling under a flat rate system led to excessive consumption and misallocation of resources. While there is much to be said in favour of universal service in that it enhances the value of the system as a whole,[69] local rates which depart very substantially from cost deprive consumers of the ability to make rational choices. As Gerald Brock put it:

> With subsidies, goods are not allocated in the way that customers would choose to allocate them. Some people who value basic telephone service less than the cost (but more than the subsidized price) will get telephone service. Some people who value long distance service more than the cost (but less than the price) will not make the long distance calls. In both cases, resources are not allocated in the best way possible because the non-cost-based prices send out the wrong consumer signals.[70]

In this day and age of home computers and computerized home telephone solicitations, it is more than ever important that telephone users be sent correct pricing signals.

It is also important to note that when subsidies are not targeted as in a non means-test entitlement program, low income persons may well end up subsidizing those who do not deserve to be subsidized every time they make a long distance call. As Bill McGowan of MCI has pointed out, in such a cross-subsidy scheme, "People would be required to pay, regardless of ability, so as to subsidize others, regardless of need."[71] Or as Charles Brown of AT&T has provocatively asked: Why subsidize people living in $200,000 houses?[72] And as Brock has noted, "... long distance calls hardly fall in the class of services only purchased by the very wealthy."[73]

The Move to Competition

In 1959 the FCC in its *Above 890* decision permitted competition in the field of private long distance telecommunication by microwave.[74] The Commission found that an adequate number of frequencies in the microwave range were available to take care of the reasonably foreseeable future needs of both the common carrier and private point-to-point microwave systems. The Commission also decided that, despite the contentions of the established common carriers, there was no showing in the record of a reasonable likelihood that the common carriers would suffer any adverse economic effects from the licensing of private point-to-point communications systems.

The *Above 890* decision was followed by a series of incremental FCC rulings in the 1960's and throughout the 1970's that, by accident or design, essentially abolished the monopoly status of interstate toll traffic. The most important of these was the 1969 *MCI* decision, which granted an application by MCI to provide specialized common carrier services between Chicago and St. Louis.[75] The FCC found that competition was reasonably feasible and that the system could be expected to provide public benefits. In its 1976 *MCI* decision, the FCC attempted to limit competition to private line service when MCI announced a plan to launch a nationwide toll service, "Execunet", which AT&T maintained was perfectly substitutable for MTS and WATS. The Commission's decision was reversed by the Court of Appeal for the District of Columbia in *Execunet I*. The Court held that the Commission was "not free to create competition for competition's sake (nor) to propagate monopoly for monopoly's sake."[76]

The immediate result of the Court reversal was to open up long distance telephone services to competition. AT&T filed a petition in 1978 with the FCC requesting a "declaratory ruling and expedited relief" affirming that the Bell System had no obligation to provide local exchange service connections for any service offerings which were not designated as private line services. The FCC ruled that AT&T had no obligation under the *Communications Act* to provide local connections for specialized carriers providing services substantially equivalent to MTS or WATS.[77]

MCI again petitioned the DC Court of Appeal for a writ of *mandamus* ordering AT&T to provide interconnection. Judge Wright, the author of the *Execunet I* opinion, overruled the Commission's declaratory ruling, saying it was inconsistent with the Court's position in *Execunet I*. The Court ordered that the specialized carriers should be allowed to expand their service offerings, and obtain the necessary interconnection, until the FCC made a finding that the public interest demanded otherwise.[78]

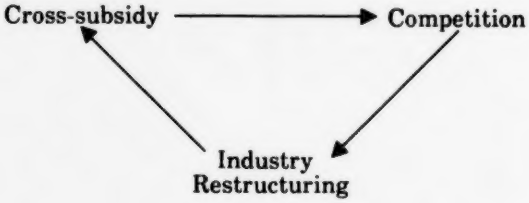
In practice these court decisions, along with FCC rulings on value added carriers and resale and sharing,[79] have opened the whole of the long distance market to competition. However, aside from the requirement in *Computer II* that AT&T provide competitive enhanced services by way of a separate subsidiary, crucial industry structure questions had not yet been addressed.[80]

Divestiture

Ownership by AT&T of *both* the local operating companies and its long distance company (AT&T Long Lines) made for an industry structure which was largely incompatible with competition. The two most obvious concerns were that AT&T would use its monopoly base in the local companies to finance forays into the competitive marketplace and that long distance competitors would not be able to obtain equal access to the AT&T owned local switched networks.

In approving the Modified Final Judgment which incorporated an agreement between the Department of Justice and AT&T, Judge Greene noted that "... the principal means by which AT&T has maintained monopoly power in telecommunications has been its control of the Operating Companies with their strategic bottleneck position."[81] Severing of the local companies from the rest of AT&T would remove two main barriers to competition. First, there would no longer be a danger of discrimination with respect to interconnection as the operating companies would not have any incentive to discriminate. Second, there would no longer be any chance of AT&T's subsidizing from a local exchange service monopoly. Divestiture would increase competition and allow for new entrants. While the cost of competitive entrance would still be substantial "... the size of the required capital investment is not as great as it once was."[82] This reduction was seen as due in part to new technology and in part to regulatory decisions allowing for resale or sharing of AT&T's service.

Developments have thus created an ever tightening regulatory policy making spiral (shown below) which will only slow down when long distance pricing more closely tracks cost.



Competition and Contribution

It was originally envisaged that residential consumers would be adequately protected against the loss of any cross-subsidy by a requirement that all competitive carriers pay substantial access charges to use telephone company local distribution facilities. As Judge Greene had put it: "The Decree would leave state and federal regulators with a mechanism – access charges – by which to require a subsidy from inter-city service to local service."[83] In a footnote he added, "Although the Decree requires the Operating Companies to file 'cost justified' tariffs for access charges, the decision as to what costs should be included is left to the regulators."[84]

This reassuring assumption appears to have been swept aside by the flood tides of technology. It now appears that such is the degree of concentration in long distance telecommunications usage and such the availability of new technologies, that the threat of bypass is so pressing that substantial local network access charges have to be abandoned in favour of a direct charge on all consumers.

The Bypass Threat

In 1981 a Congressional report, *Telecommunications in Transition: The Status of Competition in the Telecommunications Industry*, concluded that the 100 largest customers provided 20 percent of long distance revenues; the 1,000 largest customers 30 percent and 3,000 customers spent over $650,000 a year on long distance telecommunications. Thus "... a proportionally small group of users make very substantial contributions to inter-city revenue requirements. This fact is critical for policy makers because these would be the most likely customers to move their traffic 'off the network' should price, service or competitive factors warrant."[85] By 1983 Pacific Tel was reporting that 1 percent of its business locations generated approximately one third of all business long distance revenues,[86] as was Southwestern Bell.[87]

In its Access Charge Order, the FCC reported numerous instances where bypass was already occurring to the financial detriment of local telephone companies. The FCC identified several technologies which were being used or were being considered for use to bypass the local telephone network – coaxial cable lightguide, microwave radio, satellite, cellular radio, Digital Termination Service, as well as ordinary copper pairs in ducts leased from the telephone company. "Whatever bypass technology is being considered", Alan Pearce has warned, "one thing is clear: The local telephone company monopoly is in danger of collapse."[88]

Since the release of the original Access Charge Order in February, 1983,[89] a number of new bypass projects have been announced. The incentives for corporate bypass, and the rate and extent of its adoption, have been well captured in an April, 1984 *Fortune* article, "The Latest Way To Foil The Phone Monopoly."

> The experience of companies already bypassing suggests the savings can be prodigious. Westinghouse spent $26 million to build a network linking 12,000 phones at 20 facilities in the Pittsburgh area. Transmitters at each building beam calls through a switching system, which routes them to antennas at other buildings. Westinghouse uses the system only for local intra-company calls; long distance calls still go through Pennsylvania Bell to a long distance carrier. Yet Westinghouse calculates that the system will save $66 million in local phone charges over ten years, providing a robust 28 percent return on investment.
>
> Potential savings have enticed many large corporations. A survey conducted by the accounting firm of Touche Ross & Co. found that a quarter of the 200 largest customers of nine phone companies have set up bypass systems and another quarter have systems in the works. Sears, Citicorp, and Bank of America bypass local phone companies in one or more ways. Citicorp has installed a fiber-optic network under the streets of Manhattan to connect its midtown headquarters with offices in three downtown buildings. The company also uses microwave transmitters to handle interoffice calls.

> Large government agencies are also bypassing. New York State and New York City both have private telephone networks. South Carolina is building a $16.7-million microwave system to carry communications between state offices. The state expects to save $100 million over 20 years.[90]

A dramatic example of the application of bypass technology may be seen in Teleport, a Western Union project involving the Port Authority of New York, Merrill Lynch and the City of New York, to be completed in 1986. It will offer a high capacity local distribution system for access to high-technology satellite communications services in the New York City area. To meet the demanding requirements of Teleport's potential users for ultra-high speed data transmission, graphics, computer-aided design, video conferencing and other specialized services, Western Union is installing a state-of-the-art fibre optic system to provide distribution from the satellite earth station's location.[91] The dramatic nature of this venture was captured in evidence before last summer's joint congressional hearings in an exchange between Senator Packwood, Chairman of the Senate Committee on Commerce, Science and Transportation and Robert Flanagan of Western Union.

> Chairman PACKWOOD. Mr. Flanagan, you are building a teleport, is that right?
>
> Mr. FLANAGAN. Yes, sir.
>
> Chairman PACKWOOD. You are going to receive the messages by satellite in the teleport and distribute them by fibre optics throughout the business district in Manhattan and in some places in Queens?
>
> Mr. FLANAGAN. That is correct.
>
> Chairman PACKWOOD. That will make you a total bypasser; right?
>
> Mr. FLANAGAN. That is true.[92]

Given the volatile, quicksilver quality of bypass technology, it has been argued that it would simply be impossible, even if desirable, to outlaw it, or even tax it. Indeed, what is seen as a threat of new cream-skimming by the local telephone companies is seen by others as highly desirable competition. Thus Judge Greene made it very clear that he would not allow the threat of bypass to hold back divestiture.

> Neither the Court nor those who object to the decree can halt the electronic revolution any more than the Luddites could stop the industrial revolution at the beginning of the last century. If and when bypass technology becomes technically and economically feasible for widespread use, it should have the effect of reducing telephone costs and charges across the board, to the benefit of consumers, the economy, and the nation. Should it turn out instead that, as some fear, this technology will be used to reduce charges unevenly so as to threaten the goal of universal service, then those with legislative authority may at that time wish to take steps, through a program of subsidies, special charges, or other regulatory means, to make the benefits of the new technology available to all, including those who are relatively low-volume users of telephone service. But there is no warrant for preventing the development of this technology through a ban on its use by AT&T or otherwise.[93]

And as Robert Flanagan has urged, prohibition or taxation misses the mark by a long shot. "This draconian response ignores the fact that 'bypass' is simply competition. Let me assure you, 'bypass' is not a dirty word or loathsome disease."[94] He added that as president of a telegraph company, he certainly knew a thing or two about bypass technology.

Even aside from the more philosophical debate as to the nature of bypass, there remains the fact that "undesirable" bypass will be very difficult to detect and even, perhaps, impossible to define in precise legal terms. This point has been forcefully made by Charles Brown.

> One proposal is to require bypassers to contribute to local telephone service as if they had used exchange access services. This is essentially a tax on bypass. We question how this could be administered because there is no formula or method of which we are aware that could be used to develop "equivalent charges." For example, how are charges to be measured when a commercial printer or newspaper transmits the text of a book by satellite from a rooftop in Chicago to one in New York? Are voice equivalent charges to be used? Are special data charges to be developed? More fundamentally, how can the charges be developed for the hybrid new technologies? It is no answer to hand off the problem to the FCC in the

> absence of standards that can be rationally administered.[95]

Some bypass is now being seen as inevitable – the question is whether it will be economic or uneconomic bypass. It is said that in the same way that artificial niches were created for uneconomic competition under the old system of cross-subsidies, any new system of cross-subsidies will lead to uneconomic bypass, i.e. when a new entrant with higher costs than the competing long distance carriers is able to price its services lower than those carriers because of artificially high local network access charges. This then deprives the local telephone companies of revenue, as well as inflating the new entrant's costs. Thus everyone is worse off and this is what has to be avoided. It seems that uneconomic bypass may only be avoided by way of an access charge placed directly on all subscribers. It will also require major regulatory adjustments and further erosion of any possible cross-subsidies. As the *Fortune* article concluded,

> Industry analysts believe that if the local telephone companies compete aggressively to bypass themselves by setting up private networks for large customers, they could keep much of the business they would otherwise lose. However, the phone companies are not masters of their fates in one crucial respect. State regulators generally prohibit phone companies from offering volume discounts or special deals to large customers. They require prices to be averaged for broad categories of service no matter what the costs of the different services within the category. This wasn't a great drawback for a monopoly. But in a competitive environment where bypass systems are being aggressively marketed, the inability to competitively price services would be insurmountable.
>
> Some regulators have ruled in favor of phone companies lately. Florida recently encouraged competitive tariffs, and public utilities commissions in the seven states served by Bell Atlantic allow it to charge different prices for services that used to be lumped together.
>
> But rulings on such issues will roll in slowly, state by state. Inevitably, state regulatory bodies will have some members who are wedded to holding down residential rates with subsidies from overpriced commercial service. The phone companies' ability to compete will critically

> depend on how fast their regulators allow them to adjust to the new environment. Their competitors don't have to wait.[96]

The Troublesome Access Charge

It has been recognized for some time that there are strong theoretical arguments in favour of a fixed long distance network access charge over and above usage charges. As the Charles River Associates report noted, "It might be argued that even customers who make only local calls might be charged access charges to the long distance network. Even if some customers never made a long distance call, they have obtained the ability to place and receive long distance calls, which is of value to them. This value is called option value. . . ."[97] Or as Alfred Kahn has put it, ". . . customers impose access costs on the system when they are connected to it, regardless of whether they proceed to place or to receive calls."[98] Or as Mark Fowler sought to explain to sceptical congressmen who wondered what possible policy justification there could be for requiring consumers to pay for services they do not use, ". . . there is no such thing technically as saying that you are only going to have a connection for a local as opposed to long distance when you connect into the central telephone office . . . there is no such thing as saying you are only connected for local service".[99]

However, the problems competition raises are not theoretical but practical and as members of Congress have forcefully pointed out, economic or engineering theory carries little weight in political debate. That it is going to be very difficult to make the connection between economic theory and political practice is apparent from the following exchange between Representative Wyden, Theodore Brophy of GTE Corp., and Charles Brown of AT&T.

> Representative WYDEN. I think the principle of the change is pretty clear, and that is we are going to force customers in this country to pay for a service that they do not use, and we are going to see a lot of high-blown talk about efficiency and economic logic and the rest, but that is the bottom principle behind the change.
>
> Mr. BROWN. That is not correct.
>
> Mr. BROPHY. Mr. Wyden, might I answer you in this way. There are two elements of the cost of telephone service. One is a fixed cost, and that does not vary with the amount of usage of the system. That is being suggested to be assessed on a flat-rate basis. Then there

> is a variable cost that varies with the amount of use, and that we suggest should be charged for on the basis of amount of use. We are not suggesting that anybody should pay for service that they do not use.
>
> Representative WYDEN. But would you not still pay even if you did not make a single long distance call?
>
> Mr. BROPHY. You would pay an amount no more than your cost of local telephone service. If you make no calls, or have no desire to receive them, then you do not need telephone service. But a system that would only permit you to receive calls or a system that would make only one call a month would be just as costly in terms of non-traffic-sensitive costs as a system where you made 100 calls or received 1,000 calls.
>
> Representative WYDEN. I think your logic is somewhat convoluted. I think it is pretty clear that you cannot say there is a cost system if you get charged for not making a single long distance call.[100]

The most lucid and readily understandable explanation as to why consumers may be required to pay for something they ostensibly do not use, has been provided by Bill McGowan of MCI.

> There are two concepts involved. One is the cost of getting to the network, the line that goes from your home or business to the closest telephone central office. That is like an electrical hookup charge, like a sewer charge, that is like any other utility connection charge. You pay in every other instance, you pay to access service.
>
> There are, in addition to that, usage costs—switching costs, trunking costs—within the local network. No one is proposing that people who occasion those costs shouldn't pay them. We are going to pay them; Lord knows we pay enough today for them.
>
> What the FCC is talking about is that connection charge, just the connection. You pay for it in every other utility, everybody always has. If I want gas, I pay a connect charge. In addition, I pay for the gas I use.
>
> If I want electricity, if I want sewer, if I want utilities in the United States—a common fact, I pay to connect to the system. You pay electrical charges. I just got through paying a big electrical charge to get into the grid. So the connection charge is what we are talking about here, not

> the usage, not the charges for switching and trunking. We are going to pay for that. We always have.[101]

Be that as it may, as Andrew Margeson of Rochester Tel wearily observed, "The major problem is that most customers, being unaware of the intricacies of rate of return regulation, have understandable difficulty accepting the idea that raising current prices is in their best interest."[102]

The Extent of Competition

AT&T still has about 90 percent of the $45 billion-a-year long distance market. However, the performance of its competitors shows that AT&T may no longer have significant market power. Major interexchange competitors, such as MCI, GTE Sprint, Allnet Satellite Business Systems, US Telephone and Western Union, had net plant of $5-6 billion by 1983, approximately one half the value of AT&T's intercity net plant. Transmission capacity stated in circuit miles equalled almost half of AT&T's. The new construction budgets for MCI and GTE Sprint stood at $1 billion, that of AT&T, $1.1 billion. "The combined 1984 construction budget of these two companies *alone equals almost twenty percent of AT&T's current net plant in its interexchange network*."[103]

The growth of the new competitors (Table 1) has been such as might indeed justify AT&T's assertion that it amounts to a transition ". . . to a market that is vigorously competitive in every sense."[104]

Table 1
Growth of Competing Interexchange Companies[105]

	1978	1980	1981	1982	1983
Revenues ($M)	270	1,004	1,550	2,414	3,710
Customers (000's)					
Business		115	210	410	525
Residential		110	730	1,600	3,300
Total Customers	20	225	940	2,010	3,825

Most striking is the ability of the competitors to target and penetrate those portions of the long distance market which are most profitable. High population density areas have been targeted and within such areas the profitable high volume customer segment. AT&T's competitors now provide service to approximately one third of all business customers with monthly long distance bills of over $50 – a group which makes up 90 percent of the business long distance revenue. Similarly, competitors provide service to one fifth of residential subscribers with monthly long distance bills of over $25 – a group which makes up 50 percent of residential long distance revenue.[106] And as reported in *Fortune*, "For now the ability of these rivals to take market share from AT&T is limited only by their ability to build capacity. If they could handle, say, 25 percent of the business, they would almost certainly have it."[107]

Who Benefits from Competition?

In any assessment of winners and losers in the shift to competition, it is apparent that the most obvious immediate winners are large corporations and that the benefits to average residential consumers appear to be either indirect or off into the future. As Representative Swift argued during congressional hearings in 1983, one would have to have a $50 a month telephone bill before there would be any benefit in any drop in long distance rates brought about by competition, and fewer than 4 percent of residential users fall into that category.

> Beyond that, in any given month, one person in six makes no long distance calls at all, and two-thirds have long distance bills below $4. What businesses will benefit? Nearly two-thirds of American businesses have monthly long distance bills under $7, and 87 percent have bills lower than the $50 in any given month, that $50 break-even point at which maybe they begin to receive some reduction in their long distance costs.
>
> Today, just 25 major companies in the United States use long distance sufficiently to account for 15 percent of all the long distance traffic themselves. Twenty-five individual businesses account for one-sixth of the interstate long distance traffic. The FCC's access charge decision is a massive shift of revenues from those 25 companies to small and medium-sized businesses and residential customers. It is those 25 large companies whose rates are going to go down substantially and

> virtually everybody else is going to pick up the difference.[108]

A radical view, which suggests that an elite group of large users has succeeded in perverting the regulatory process to its own ends, has recently been put forward in a carefully documented and forceful manner by Dan Schiller.[109] The traditional radical view of regulation holds that the regulator is captured by the dominant company it is supposed to regulate and that regulation is used as a screen to shield the abuses of monopoly power from effective public scrutiny. This theory cannot, of course, explain the essentially anti-AT&T decisions more recently adopted by the FCC, unless it is recognized that there are even more powerful forces involved than the telephone companies alone. As Schiller explains:

> The Commission in fact responded to the one and only economic entity able to muster greater collective force than AT&T – that is to big business as a whole in the shape of present and prospective *users* of advanced computer communications.
>
> Business users . . . have become a pivotal and still growing telematics policy-making force.[110]

Schiller is particularly concerned to discredit two naive notions – that it is "technology" by itself which is bringing about change, and that some abstract notion of "competition" and the invisible hand lies behind recent developments.

When looking at *Computer I & II*, analysts, Schiller insists, have all too often claimed that "technology" *per se* had made tariff and service restructuring essential for large users rather than the need to integrate maximally cost efficient data communications within evolving corporate domains. "This distinction is vital because, in its absence, analysts may be content to disregard the active, even aggressive, role of users in shaping telecommunications policy, and to substitute an innate, abstract and in actuality non-existent technological imperative."[111]

As to "competition", Schiller notes the extent to which big business has disguised its self-interest in objective, neutral pseudo-scientific terminology which suggests inevitability and rationality.

> Through their lip service to the doctrine of competition we find the curious and ironic spectacle of corporations

> that are oligopolies and monopolies in their own markets justifying their opposition to monopoly market power in telecommunications by reference to the rhetoric of eighteenth century entrepreneurship.[112]

This brings us to a fascinating common ground between the radical critics and old line telephone company executives. Schiller cites with approval the pointed objections of John deButts, former chairman of AT&T, to competition: "What the FCC is doing might help some people, mostly business." "What competition is going to do is to reduce rates for big business and increase rates for little people." Or as he was to caution in response to a question as to the basic aim of US telecommunications policy: "Is it, as we in the industry have conceived it to be and the Communications Act appears to confirm, to promote the widest availability of high quality communications service to all the people of the United States, or does that aim now yield to particularized interests of specialized classes of users . . .?"[113]

> DeButts had to appeal to the "little people" simply because the big ones—business users—were arrayed against him. No matter if self-serving, however, his question remains profoundly valid today—for, in the great telecommunications debate it has for the most part been nimbly sidestepped, evaded or crisply ignored. While debate has swirled round the issue of "competition"—a smokescreen for business users' freedom of choice—the truly vital and encompassing issues raised by rapid integration of telematics into the conduct of our entire social life as a people have been mainly framed and addressed and, perhaps, resolved, in terms of private corporate strategy, and not of public good.[114]

However overstated Schiller's thesis might be, it certainly cannot be ignored. Indeed, as Representative Swift and the political row in the United States indicate, advocates of competition are going to have to explain just how "little people" are going to benefit from competition. Of course, there are a number of general responses to Schiller, some of which will be discussed below, but as the reaction to a recent Canadian federal budget based on "short term pain for long term gain" made clear, it appears difficult to overestimate just how short term are the concerns of the electorate.

Before dealing with these more general points, it should be noted that the most recent developments seem to make it much more likely that "average" consumers will benefit from competition. This is despite evidence that 10 percent of subscribers may make no long distance calls and some 45 percent less than $5 worth of calls a month. See Table 2.

Table 2
Distribution of Residence
Message Toll Service (MTS) Billing
(Second Quarter, 1980)[115]

Average Billing Per Month Per Household	Percent of Households
$0.00	10.4%
0.01 - $0.99	7.4
1.00 - 1.99	6.8
2.00 - 2.99	6.0
3.00 - 3.99	5.3
4.00 - 4.99	4.6
5.00 - 5.99	4.3
6.00 - 6.99	3.7
7.00 - 7.99	3.3
8.00 - 8.99	3.2
9.00 - 9.99	2.8
10.00 - 10.99	2.8
11.00 - 11.99	2.5
12.00 - 13.99	4.7
14.00 - 15.99	3.6
16.00 - 17.99	3.2
18.00 - 19.99	2.9
20.00 - 22.99	3.4
23.00 - 24.99	1.9
25.00 - 29.99	3.9
30.00 - 34.99	3.0
35.00 - 39.99	2.1
40.00 - 44.99	1.6
45.00 - 49.99	1.3
50.00 and greater	5.3

Consumer Reports for September, 1984 in a detailed article evaluating 10 competitive long distance services from a residential consumer's point of view, was much more positive than it had been in the past.

> Until six years ago, you could no more choose your long distance phone company than you could choose your parents. If you wanted to make a long distance phone call, you had a single choice: AT&T. Today, there are dozens of long distance carriers.
>
> AT&T's competitors have so far captured less than 10 percent of the long distance market. A big chunk of that represents business calling. Fewer than 3 percent of residential customers have yet made the switch.
>
> A cluster of inconveniences, major and minor, have in the past argued against straying from AT&T, even though the alternative services are less costly.
>
> One drawback in the past was that many of the alternative services suffered from poor voice-transmission quality. Callers sometimes sounded as if their voices were transmitted by tin can and string. But our tests last year and this year showed that voice-transmission quality has improved on several of the services. Voice quality on the other AT&T competitors should improve too, as phone companies phase in the Government-required "equal access" program, under which AT&T's competitors get the same kind of connections to local Bell phone-company lines that AT&T has always enjoyed.
>
> Another drawback to using AT&T's competitors has been inconvenient dialing. You typically have to dial 13 extra digits to use an alternative carrier – the seven digit local number of the carrier, plus a six-digit personal code. But this drawback, too, will soon disappear for most callers. Under the equal-access program, your local phone company will ask you to choose a "designated carrier" for your long distance calls. You can choose AT&T or any of its competitors serving your area. Once you've chosen a company, your calls will automatically go out on its lines. No need to dial extra digits to reach the company's computer or switching station. You will just dial the number you're calling.
>
> A third drawback to alternative services in the past was that they commonly imposed a monthly fee, in addition to the charge for the calls made. For many

> residential users, the fee ate up any saving from lower rates. Lately, however, most of AT&T's competitors have dropped their monthly fees.
>
> Some services had a fourth drawback – "blackout" hours, when residential customers couldn't use the carrier's lines. Those, too, have largely disappeared.
>
> * * *
>
> The monthly charge that was formerly imposed by AT&T's competitors usually amounted to $5 or $10 beyond the cost of calls made. Thus, if you made, say, $25 in long distance calls each month on AT&T, it probably wasn't worth switching even if you could achieve a 25 percent saving on each call.
>
> Early this year, GTE Sprint, the nation's third largest long distance phone company, eliminated its monthly fee. That step, coupled with some other changes that made the service simpler and more attractive, brought Sprint a rush of orders – 350,000 new customers in three months. (Not fully prepared for the rush, Sprint temporarily had to stop accepting new accounts in many cities for fear of overloading its network.)
>
> Sprint's experience didn't go unnoticed by AT&T's other competitors. Most of them have introduced their own simplified rate structures this year. Now, very few of the major long distance services add a surcharge to the cost of calls. Several services do, however, require a minimum dollar volume of calls per month. If you make fewer calls, you'll still be billed for the minimum. The minimums recently ranged from $5 a month (GTE Sprint) to $16 a month (ITT Niteline).
>
> As a result of the past year's changes, you may now be able to save money by using an alternative long distance carrier no matter how few calls you make.[116]

Turning to more general points, it might be noted that increased telecommunications efficiency associated with competition benefits consumers generally. This is, of course, a difficult matter to quantify although a Wharton Econometric Study has forecast an increase of $46.2 billion in real GNP over the 1984-88 period if competition is adopted.[117] More specifically, it has been noted that high telecommunications costs are simply passed on to consumers who thus ultimately pay for their own subsidies.[118]

Finally, there are the claims for greater innovation and enhanced consumer choice. As the major US congressional study, *Telecommunications in Transition* emphasized, the spur of competition is critical to innovation. As an example the study noted that when MCI first appeared as a competitor it carried 2,100 voice channels to Bell's 1,800 – by 1981 both carried 6,000 voice channels on a microwave circuit.[119]

As to consumer choice, a company in a competitive market that misjudges customer desires soon learns of its mistake from the success of its competitors. A company that misjudges consumer desires in a monopoly market has no check on its judgment so long as profits continue to be made. There is less actual information (that is, no competitors to watch) and less incentive to gather accurate information about consumer desires in a monopoly market.

Maintenance of Universal Service

Competition in telecommunications appears to be somewhat paradoxical in its results. According to economic theory, competition and new technology are supposed to bring reduced costs and prices as well as more diversified services and expanded consumer choice. Yet in the telecommunications industry, where competition is increasing and new technology is being introduced at a rapid pace, it appears that the costs and prices of local service will have to increase substantially in the next few years.

The single mindedly economically efficient solution would be to have subscribers pay a flat fee to cover their marginal subscriber line or non-traffic sensitive costs. This would, according to 1981 data, amount to some $26 per subscriber as compared with about $10 currently paid by residential customers. The increase would be even sharper for rural areas – the average subscriber line cost in Nevada is $42. As Leland Johnson has noted, "This situation poses sharply the conflict between the goal of economic efficiency on the one hand, and the goals of maintaining universal service and distributional equity on the other".[120]

Significantly, the FCC which, from a Canadian perspective might be regarded as focussing exclusively on economic efficiency, rejected proposals which would have placed an even greater burden on residential subscribers. In its struggle to determine how to attain distributional equity without large losses of economic efficiency, the FCC has adopted a compromise approach known as "Pure II" which will reduce, but not eliminate, cross-subsidization. By adding $7 to the current $10 a month, the Commission has gone some way to reduce the gap, but this still falls well short of the $26 figure. It is thus particularly important for Canadians to realize that despite all the outcry in the United States and suggestions by John Meisel, for example, that "decency", "moral principle", "justice" and "humanity" have been sacrificed to economic efficiency, the FCC has stopped well short of totally abandoning distributional objectives.

What is not at all clear is whether FCC mandated access charges are going to have an adverse impact on universal service. There was considerable frustration at the lack of any reliable estimates during the congressional joint hearings. The following angry exchange was all too typical.

> Senator RIEGLE. I do not understand how we can just be so academic and detached from the effects of these decisions. It's not healthy and we find ourselves at this late hour without any necessary internal information with respect to at what point people drop off the system.
>
> Mr. FOWLER. It is very hard to know that, sir.
>
> Senator RIEGLE. I am not saying it is not hard to know it, but I am just saying that it is up to people like yourself to make these determinations.
>
> Mr. FOWLER. There have been studies that have been done, but they are not satisfactory and that is what we are trying to deal with right now in cooperation with the States.
>
> Senator RIEGLE. But you have not done one internally, as I just heard this witness say.
>
> Mr. FOWLER. No, we have not.
>
> Senator RIEGLE. And that to me is a surprise. I am surprised we would be this far down the track and that kind of very fundamental piece of work would not be done.[121]

As well, there was considerable confusion over the only major study which had at that time been done of the impact of rate increases. This was one in 1978 by Lewis Perl of National Economic Research Associates, which had been introduced by AT&T in the antitrust proceedings. As Table 3 shows, Perl found a significant elasticity of demand for telephone service, especially among rural poor.

Mark Fowler had sought to downplay any suggestion of substantial inroads on rural service by emphasizing that only a $2 increase was to have been imposed in 1984, or, as he emphasized – a mere extra 7 cents a day. However, given additional pressures on rates, especially the need for much faster depreciation in a more competitive environment, even Fowler conceded that local residential rates would at least double in three years.[123]

Table 3
Estimated Percentage of Households with Basic Telephone Service[122]

Demographic Characteristics	Base	Price Increase 50 Percent	 100 Percent	 200 Percent
All	91.52	88.15	83.69	70.92
Young	85.39	80.12	73.54	56.92
Black	86.37	81.38	75.08	58.89
Rural	88.84	84.59	79.10	64.28
Moderately poor	83.81	78.12	71.11	53.93
Young	72.18	64.14	55.22	36.97
Black	75.25	67.71	59.12	40.74
Rural	79.26	72.48	64.50	46.34
Very poor	79.28	75.52	64.53	46.38
Young	64.99	56.14	46.88	29.56
Black	69.21	60.78	51.66	33.69
Rural	73.85	66.07	57.31	38.96

Leland Johnson in his timely study, *Competition and Cross-Subsidization in the Telephone Industry*,[124] concluded that an increase in access rates towards marginal cost would not jeopardize universal service. However, he was equally persuaded that nothing that he had to say would provide much comfort to state regulators, state legislators and many in Congress.

> For them, the problem is dealing with complaints against higher telephone rates. Even if it were shown with certainty that *no one* would discontinue telephone service as a consequence of rate hikes, demands for maintaining low rates would remain. Thus the issue may be less one of economic efficiency versus universal service than of economic efficiency versus distributional equity. . . . These demands may reflect the possibility that low-cost

> telephone service is increasingly regarded as an entitlement to the American public, especially to low-income groups. Like other entitlements – whether they be veterans' benefits or generous cost-of-living adjustments to social security recipients – once it is conferred, this entitlement can be retracted only with great difficulty.[125]

Perl's second study in 1983 was based on 1980 rather than 1970 census data.[126] The marked increase in telephone demand over the decade seems to be of great importance because demand now appears much less sensitive to increases in access prices than would have been the case a decade ago. "Thus, the goal of maintaining universal service and the goal of instituting cost-based pricing are not as conflicting as they seemed to be when the 1978 study was done."[127]

Thus where rates are increased from a flat rate of $10 per month to $20 per month and a measured rate from $6 to $16 and then to $30 and $26 respectively, the reduction in average penetration is significantly less than what it was in the 1978 model. See Table 4.

Table 4
Telephone Penetration Rates at Alternative Access Prices
1983 and 1978 Models[128]

Change in Rates	1983 Model	1978 Model
10/6	93.2%	88.2%
20/16	89.6	81.8
30/26	84.7	73.3

While reassuring, problems may remain when it comes to low income earners. See Table 5.

As Perl has emphasized, these figures may be alarming or reassuring. "Some readers will conclude that these effects are trivial, while others will view them with genuine concern. Depending on the price changes contemplated and the economic and demographic characteristics of the area considered, either view may be appropriate."[129] Be that as it may, the drop off rates for lower income subscribers appear sufficiently drastic as to warrant serious attention.

Table 5
Telephone Penetration by Income Group
At Alternative Access Prices[130]

Income Group	Flat Rate/Measured Rate ($10/$6) (1)	($20/$16) (2)	($30/$26) (3)
Below Poverty Level	79.38%	70.28%	59.54%
1 to 2 Times Poverty Level	89.49	83.42	75.15
2 to 3 Times Poverty Level	93.88	89.87	83.90
3 to 4 Times Poverty Level	96.36	93.77	89.67
4 to 5 Times Poverty Level	97.50	95.66	92.65
4 to 6 Times Poverty Level	98.22	96.87	94.62
Above 6 Times Poverty Level	99.04	98.29	96.98
All	93.29	89.45	84.10

How then will it be possible to respond to this political/ distributional equity concern, and, at the same time, not sacrifice economic efficiency? The answer universally agreed to is "targeted subsidies". There is, however, little agreement on what precisely is involved in such a notion.

Fowler has emphasized that the FCC access charge plan establishes a procedure whereby exchange carriers can seek waiver of the subscriber's flat charges in order to accommodate lifeline type services. Thus, he insists, states will be able to maintain targeted support for the poor and the elderly who might otherwise be unable to continue service.[131] As Charles Brown has argued, there will be no need to resort to a tax based support system because, after divestiture, there will still be *some* cream in the system. This will be possible because intraexchange service that accounts for over 90 percent of all calls, retains substantial natural monopoly characteristics, and the states will be free to make up any shortfalls created by lifeline services with a limited number of outgoing calls by imposing "modest surcharges" on other intraexchange services.[132]

For the economist, of course, it would be better to avoid such continued cross-subsidy in favour of a direct subsidy to the needy. Thus Leland Johnson has proposed that "telephone stamps" be provided to the very needy in a similar fashion to food stamps. This would target the intended beneficiaries and not transfer economic inefficiencies from long distance to local service. Yet, as he concedes, this approach will probably not be adopted because its economic strength – openness and directness – is its political weakness.

> Interest in expanding the Food Stamp program beyond food purchases would surely trigger competing demands for coverage of numerous items. It is not obvious that telephone service would rank high in the priorities that would emerge from the struggle. For example, a more compelling case might be made for help to offset the high cost of space-heating for low-income groups. While one can survive a New England winter without telephone service, the same cannot be said for space-heating. For both these reasons – the widespread preference for cross-subsidization to explicit subsidies, and the likely demands for coverage of other purchases were the Food Stamp program expanded – the prospects of this approach being adopted are dim.[133]

One is, as a result, largely forced to fall back on the notion of an intraexchange subsidy, assuming of course, that the threat of bypass has eliminated any major reliance on network access charges. In a worst case scenario, such a subsidy will simply encourage uneconomic bypass in intraexchange services. While it would appear that Charles Brown is right in his characterization of intraexchange services, it might seem undesirable to build in a new set of economic inefficiencies. Moreover, as consumer groups have made clear, the "lifeline" services *they* envisage are not at all those that Fowler and Brown have in mind.

Thus, Robert Nichols of Consumers Union has urged that Congress mandate lifeline services, but not of a measured service variety.[134] Dean Kimmelman of Congress Watch has called for a federally mandated lifeline service with unlimited calling and no stigma of an embarrassing means test.[135] Vita Ostrander of the American Association of Retired Persons has eloquently stressed the degree of reliance on telephone service by the elderly, especially the frail elderly. An appropriate lifeline service would not be defined in terms of the resources of the telephone companies "... but rather on the access needs of low-income subscribers." As she concluded, "They (the elderly) use it as a social instrument and local measured service knocks out the social instrument."[136] Only Sam Simon of TRAC was prepared to accept the need for a limited number of outgoing calls.[137]

It would thus appear that if lifeline rates as envisaged by consumer groups (whose demands confirm Johnson's and Kahn's conclusion that inexpensive local telephone service has come to be seen as an outright entitlement) are to be adopted, they could not be provided from intra-exchange subsidies without creating a new risk of bypass.

Not only is there disagreement as to the level of subsidy, but also as to how recipients are to be identified. Any avoidance of the "stigma of an embarrassing means test" re-introduces all the present problems with untargeted subsidies. As Bill McGowan has been quick to point out, the affluent are likely to take advantage of rates designed, in principle, for the needy. "For example, in California where we checked, we found that most of the lifeline service there is connected to ski chalets, and these people want to have a phone for their friends to use to call them—all incoming calls. This service costs $2.50 a month. But these very same people have an average of something like $18 a month in long distance phone bills."[138]

Some indication of the contemporary importance of lifeline rates may be seen from Michigan where there are 300,000 subscribers to a $4 a month, two calls a day, service. With high unemployment in that state, the state regulators are very concerned that this heavily subsidized service will be oversubscribed. As the Chairman of the Michigan Public Service Commission explained:

> ... the problem is that $4 rate is not compensatory. It is heavily subsidized, and what we are deeply fearful of is, let us say that everybody else's rates double. You know that there is going to be a fantastic migration onto that $4 rate, and the problem is that in Michigan, for instance, there are 700,000 unemployed families.[139]

From all this, it may be seen that while it is easy to disparage the existing subsidy system and call for targeted subsidies, it is not easy to agree on where the subsidy is to come from (it could be from intra-exchange services, from both intra-and inter-exchange services or even possibly from a tax on telecommunications equipment), or to whom it should go (it could be by way of a means test or to anyone wishing the service) or what level of service is appropriate (a literal lifeline of 2 calls a day, or unlimited calls as a "social instrument".) All in all, as is so often the case, American experience raises more questions than answers for Canada. At the same time, it does give us advance notice of the type of issues we will be facing in the next decade.

Beyond Short-Term Confusion

In his evidence to the Board of Commissioners of Public Utilities of New Brunswick, Alan Pearce concluded: "A single word can be used to describe conditions in the telecommunications industry in the United States. That word is chaos."[140] This is a somewhat misleading and inaccurate description of developments in the United States by someone clearly out of sympathy with the move to competition. A more sympathetic, forward looking assessment is that of Manley Irwin in his evidence in the CRTC interexchange competition proceeding.

> In the past six months, the attitude shift of both AT&T and the regional Bell operating companies has been nothing less than phenomenal. The telephone franchise, once perceived as a protective license, is now regarded, at least by some carriers, as an impediment to emerging opportunities. It is true that not all carriers manifest this change. But there is sufficient diversity among telephone companies to suggest that some companies, once long defenders of the public utility principle, are moving slowly and inexorably away from that principle to embrace the opportunities of open market competition.
>
> The transition of AT&T is striking. First, the company divested its regional Bell operating companies (clearly involuntarily) and with it, jurisdictional control by state regulatory commissions. Second, the company created a separate subsidiary for the purposes of diversifying into new services, information, computers, data processing, including the establishment of a telephone reseller competitive with itself. And finally, AT&T has petitioned the FCC to remove the regulatory restraints on AT&T Communications itself.
>
> I suspect that the same transition mechanism can be detected at the operating company level. It is for this reason that I regard technological bypass and exchange rates, however critical and controversial, as essentially issues of intermediate standing. Indeed, it is my

> judgment that we are witnessing a profound evolution in the US economy, namely the formation of an information infrastructure of borderless markets and intensified global competition.[141]

Pearce's one word description is no doubt what those in Canada who do not want change long to hear. Indeed, it is said that if only we would stand firm on the old true principles of monopoly and system-wide pricing, such will be the chaos to the south, that traditional ways of doing things will eventually be vindicated. This reassuring scenario assumes a far greater degree of confusion than in fact exists and fails to take into account the extent to which, behind all the superficial disorder, a conscious, irreversible decision has been taken to change the basis on which telecommunications services are provided.

Of course, there has been some confusion and even some service deterioration. There were widespread complaints in the first half of 1984 with respect to all manner of service related problems.[142] AT&T has reported to the FCC that its nation-wide backlog for private-line circuits totals 41,000 orders and only 30 percent of them are being filled on time.[143] Yet these problems seem no more than might be expected in the breakup of a highly integrated corporate giant with $150 billion in assets and over one million employees. Nor should it be thought that surface confusion indicates any lack of a clear sense of direction. While it is true that the process is not yet complete,[144] the US has set out resolutely towards its goal of fully competitive telecommunications. And it has sought to grapple with the massive transitional problems involved in as systematic a manner as political sensitivities and divided authority allow. How well will Canada fare?

Developments in Canada

Before considering any details, it would be well to survey what will be the battlefield. There has been a substantial move towards competition starting with certain specialized telecommunications services in the late 1970's and then spreading to private voice and the attachment of equipment to telephone company networks in the early 1980's.[145] It is only in comparison with the United States that these moves seem somewhat modest.[146]

Much of this change has been with respect to federally regulated companies such as BC Tel and Bell Canada.[147] While thus falling short of being a truly national phenomenon as in the US, it should always be remembered that federally regulated telephone companies in themselves make up some 65 percent of the telecommunications carriage market.[148]

Most of the decisions have been made by regulatory agencies, particularly the CRTC. Unlike the situation in the United States, Canadian courts have not been as much involved. This is not to say, however, that they have not played a significant role as in the *Challenge Communications*[149] case where a broad interpretation of the CRTC's statutory authority was upheld by the Federal Court of Appeal. The commission's broad approach, in turn, created an impetus for major changes with respect to competition in the terminal attachment market.[150]

Two other important court decisions should be noted as well. In the *Garden of the Gulf Motel*[151] case the Supreme Court of Prince Edward Island reversed a ruling of the Public Utilities Commission which had denied a subscriber the right to attach his own equipment to the telephone company's network. In a sweeping decision the court held that the Commission and Island Tel "... should realize that customer-owned terminal equipment is a 'fact of life' in the telecommunications industry ...".[152] It went on to require that the regulator make appropriate new rules to govern terminal attachment.

In *Bell Canada* v. *Harding Communications*[153] the Supreme Court of Canada held that where a competitor alleged that it had suffered damages as a result of the unlawful acts of the telephone company, it could seek to obtain an injunction from a court without first going to the regulator.

Harding was a distributor and manufacturer of telecommunications equipment. One of his products was a device known as "Divert-a-Call" which the Bank of Montreal was prepared to use in connection with its credit card authorization centres. Harding developed a system making use of this device which was acceptable to the Bank of Montreal. The system involved the use of Bell Canada's telephone lines and the Bank asked Bell Canada for couplers to facilitate installation of Harding's equipment. Bell Canada refused and threatened to disconnect the Bank's telephone lines if Harding's equipment was installed. It offered to lease the same type of equipment to the Bank. The Bank refused this offer but at the same time decided that it could not proceed with its dealings with Harding. Alleging that its business with the Bank of Montreal and others had been jeopardized by Bell Canada, Harding brought an action against Bell Canada for an injunction to restrain it from interfering with Harding's business and from threatening to disconnect customers' telephone lines.

In holding that Harding could come straight to the courts, Chief Justice Laskin enunciated a potentially broad means of access to the courts.

> The Commission is not itself the final authority on questions of law or jurisdiction arising out of proceedings taken before it. There is provision . . . for an appeal to the Federal Court of Appeal, with leave, on questions of law or jurisdiction . . . with the possibility of a further appeal here. It is this Court which would finally settle any question of law . . . whether it came through a Superior Court route or through a route leading from the Commission's decision.[154]

Despite these developments, the importance of the decisions which have been made are to a great extent overshadowed by those soon to be made. As we have seen, the initial limited *MCI* decision in the US soon led to the *Execunet* controversy in which MCI sought to move from point to point private voice to public long distance telephone service. Somewhat similarly, CNCP was granted permission for limited private voice in 1979; in 1983 it applied for permission to offer full interexchange competition.[155] This study is written under the shadow of the October, 1984 general issue hearing into interexchange competition.

Long Distance Pricing Practices

It would appear that much the same forces have been at work in Canada as in the US. If anything it may be that the cross-subsidy is even larger.

Bell Canada addressed the "imbalance" between local and long distance rates in its evidence to the CRTC interexchange competition proceeding.

> Evidence of this imbalance has been provided many times in rate and other public hearings before the CRTC, most significantly in the form of the Five-Way Split studies. The most recent of these shows that, in 1982, it cost Bell Canada $1.93 to generate $1.00 of revenue in the Non-Competitive Local services category. Conversely, to generate $1.00 of revenue from the Non-Competitive Toll services category it cost Bell Canada only 32¢. Bell Canada in 1982 had a shortfall of approximately $1.2 billion from the provision of Non-Competitive Local services, which was offset by revenues from Non-Competitive Toll services.[156]

While the exact extent of this subsidy is still controversial (the Five-Way Split studies were not accepted as auditable in the most recent proceedings of the Cost Inquiry[157]) Figure 1 does give at least some idea of the dimensions of the public policy issues involved.

Moreover, Bell Canada believes that rate adjustments to recover costs will have to be greater for residence services than business services.[158] On the other hand, it believes that some long distance rates could, based on current estimates of costs, be as low as one third of existing rate levels.[159]

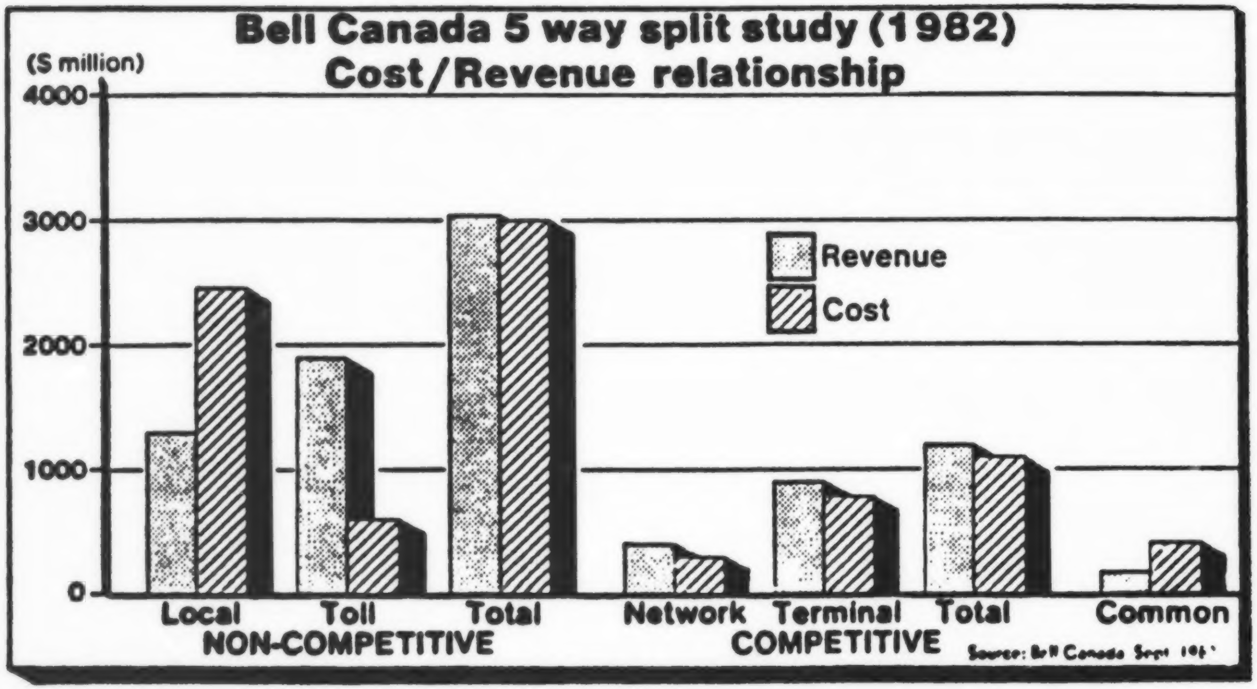
In its evidence BC Tel estimates that the "contribution" from long distance to local service amounts to some $350 million a year.[160] And, "BC Tel has determined that revenues from local services would have to more than double in order to fully recover their economic costs."[161]

NB Tel, while conceding that quantification is difficult without an operatonal service costing system, has, nevertheless, concluded that, on average, local service rates to residential customers would have to be increased by up to $26 per month if there were full competition in intercity services.[162] Similarly, it estimated that in 1982 its toll rates generated a contribution over and above costs ranging from a low of $48 million a year to a high of $67 million. "For illustrative purposes, these amounts represent, respectively, $224 and $312 per year per residence subscriber on the average."[163]

A significant cross-subsidy has been institutionalized through Telecom Canada despite differences in ownership because of common telephony characteristics.

> Common characteristics and objectives in a monopoly era included system wide pricing, extensive contribution from long distance to local service, a commitment to universal service and, overall, emphasis on service and not on marketing. Under these circumstances there was considerable mutuality of interest between all members. On the critical issue of division of toll revenue, all started from a common assumption of the need for cross-subsidy and in a period characterized by declining costs and no competition it was possible to provide substantial support to 'toll revenue dependent' members. Today, competition threatens the long distance golden goose. . . .[164]

Figure 1
Bell Canada's 5-Way Split Study (1982)
Cost/Revenue Relationship



Bell Canada 5 way split study (1982)
Cost/Revenue relationship

Source: Bell Canada Sept 198[illegible]

Declining long distance rates will have a serious adverse impact on toll dependent members of Telecom Canada. For example, in 1982 Canadian telephone companies as a whole received 53 percent of their total operating revenues from long distance rates. However, for AGT it was 64 percent, for Man Tel 59 percent and for Sask Tel 66 percent.[165] And in Saskatchewan, it has been estimated that it costs $42 per line to provide local service, while the flat rate is justover $10 a month.[166]

Moreover, the CRTC has made it clear that Telecom Canada has to move to a cost based separations process[167] which will expose the whole arrangement to public scrutiny. And who can be sure that callers from Ontario and Quebec to British Columbia will be willing to "contribute" to local service in Saskatchewan or Alberta? Most importantly, the CRTC has said that it is prepared to strike the appropriate balance between long distance and local rates as a matter of national public policy and not leave it to private ordering.

> The Commission considers that the aggregate of revenues from (Telecom Canada) services should make an appropriate contribution to meet the over-all revenue requirements . . . having regard to other sources of revenue available and to the objective of maintaining reasonable levels of local and intra-company long distance rates. At the same time, the Commission considers that, in the public interest, rates for (Telecom Canada) services should generally be set at levels which facilitate the flow of telecommunications across Canada.[168]

Problems with Cross-Subsidies

While much the same criticisms of the nature and effects of cross-subsidies made elsewhere in this study are applicable in Canada, there are additional uniquely Canadian concerns which need to be noted.

First, as Fuss and Waverman have pointed out, Canadian pricing structures appear to be neither efficient nor equitable. For instance, ". . . the present structure of Bell Canada's prices is so inefficient that equity would have to imply social welfare weights which were strongly dominated by local users in order to rationalize this structure."[169] Yet such dominance could hardly be justified on equitable grounds. What seems to be overlooked in Canada when consideration is given to that very ambiguous concept, equity, is the notion of "horizontal equity" in which people in roughly the same situations pay about the same charges. However BC Tel has finally concluded, "The current contribution to local service rates is not targeted. It applies to all subscribers, regardless of circumstances or ability to pay . . . the current method of contribution is inefficient and wasteful of resources."[170]

Second, and most important from a Canadian point of view, a system of cross-subsidies from long distance to local may well undermine the nation building capabilities of an "electronic railroad". As the Economic Council of Canada asked, has the extent of this subsidy ever been endorsed by government? "A policy to restrain local rates to the point where this requires a substantial increase in toll rates and a substantial reduction in the demand for long distance service", the Council went on to note, "seems inconsistent with a range of government programs designed to extend communications links and help reduce the geographic barriers between individuals in different regions of the country."[171]

This concern was most forcefully expressed by the Clyne Committee on the Implications of Telecommunications on Canadian Sovereignty:

> In our view, the high level of long distance telephone rates, an outgrowth of the uncoordinated regulatory process in the industry, is a barrier to national communication and understanding. We recommend that the governments and agencies involved cooperate to create a mechanism which will review long distance rates and determine that they reflect national as well as regional interests.[172]

The Clyne Committee report was not initially very well received by the telecommunications industry. As Eldon Thompson, president of Telesat Canada, has observed, "In the carrier industry, I think that most of us, to be really blunt, found the Clyne Report to be simplistic, superficial and a little hysterical in its view; I do not really think that anyone is paying much attention to what it said."[173] However, it is interesting to note that both BC Tel and Bell Canada in their submissions to the CRTC on interexchange competition, have enthusiastically endorsed this recommendation of the Clyne Committee.[174] Has it not truly been said that, "Misery acquaints a man with strange bedfellows"?

Competition and Contribution

As initially in the United States, it was assumed in Canada that should competition be allowed in long distance, it would only be on condition that the competitor made adequate contribution to help keep down local rates. In this neat arrangement, the benefits of competition could be obtained without disrupting support for local service. Rates would be set in such a manner that those most likely to benefit from competition, large corporations, would ensure that any impact on residential subscribers would be kept to a minimum.[175] Indeed, CNCP was only to be granted a limited form of competitive entry in order not to threaten the long distance subsidy. As the CRTC put it:

> . . . the Commission has concluded that it is necessary in the public interest to protect (public long distance) services from direct competition and therefore agrees with CNCP that it should not be permitted to offer the equivalent of public long distance service. The necessity for according a certain protection for (public long distance) services arises for three reasons: first, the possibility of voice service offerings that would depart significantly from conventional private line services and might therefore lead to a substantially greater erosion of (public long distance) revenues than currently obtains; second, the significant contribution that (public long distance) makes to the costs of Bell's local exchange facilities; and third, the desirability of maintaining a uniform route averaged rate structure which has been found to be in the public interest.[176]

This insistence on only limited competition and of the need to protect the source of cross-subsidy, was carried over into a general principle that there should be some contribution by all interexchange competitors. "The Commission considers that as a matter of regulatory policy, all inter-exchange services which are directly competitive and which co-use local exchange facilities should make a comparable level of contribution towards local exchange facilities costs. . . . Having set rates for CNCP, it will be necessary for the Commission to ensure that these rates reflect an adequate level of contribution and that in the long run Bell's directly competitive services also make a comparable level of contribution."[177]

CNCP has been willing to go along with this approach. In its October, 1983 application to provide alternative public long distance services, CNCP stated that its long-term objective is to expand its services ". . . to as many local public switched telephone networks as is compatible with the economic viability of such services overall and with the resources of the firm, with the ultimate goal of providing universal service."[178] CNCP proposes to pay BC Tel and Bell Canada "reasonable compensation for the facilities required for the interexchange of the traffic" involved.[179] Moreover, it indicated that it was prepared to pay additional compensation as determined by the CRTC if the regulator were to decide that BC Tel and Bell Canada ". . . are required by public policy to provide telecommunications services at less than cost, and that the granting of this application without compensation additional to the cost of the facilities furnished to CNCP would prejudice the ability . . . to comply with that public policy."[180]

Significantly, BC Tel has strongly rejected any notion that a suitable contribution mechanism could even be designed, let alone implemented. At the level of general principle it was argued that contribution to local service by way of access surcharges on competitors would result in bypass systems being introduced to avoid contribution payments. As revenue was lost to bypass, a reduced customer base would be left to support the cost of local service. "Resultant higher local rates would increase bypass in a compounding pattern until the remaining local subscribers would be burdened with the full costs of local service."[181]

As to the specific CNCP proposal, BC Tel was unsparing in its criticism.

> CNCP has not adequately demonstrated the impact which its Application, if granted, would have on the public. It is true that certain segments of the population would benefit from lower long distance prices. However, CNCP's assurance that the "granting of the application will have no adverse effect on either local public telephone rates or public telephone service to remote areas" is superficial and unrealistic.
>
> BC Tel has demonstrated that "contribution schemes" would not be effective. They would lead to continuing controversy about how they should be designed and administered, but would maintain the artificially high prices for the services in question, thereby facilitating uneconomic entry by CNCP and promoting uneconomic bypass of the existing networks. The inevitable final result would be severe increases in

> local telephone rates, introduced in an unplanned, disruptive manner.
>
> Furthermore, no contribution scheme could allow CNCP to simultaneously:
>
> - Make an equivalent level of contribution to local services to that provided by BC Tel.
> - Discount its competitive services by 10-20 percent (as publicly stated by a CNCP spokesman).
> - Make a satisfactory profit.
>
> CNCP would be forced to forego at least one of the above. Based on regulatory decisions in the recent past regarding competitive services, it is BC Tel's concern that, of the three, the contribution level may be the one which would be allowed to deteriorate.[182]

Ron House, in evidence to the Board of Commissioners of Public Utilities of New Brunswick, noted just how difficult it would be, in practice, to determine the appropriate level of contribution from competitors.[183] Not only would there be immense computation problems, but economic incentives and new technological opportunities would guarantee evasion and disputation. Indeed, it would appear that the advent of bypass will challenge the credibility of any contribution scheme.

The Bypass Threat

In its submission to the CRTC's interexchange competition proceedings Bell Canada addressed the importance of the bypass issue in only general terms.[184] However, it added, "Some of Bell Canada's largest customers, faced with the artificially high price of carrier provided options, have actively investigated the feasibility of building their own private communications systems."[185]

BC Tel was much more specific and in appendices to its submission included the type of data previously publicly available only in the US. It pointed out that, ". . . one-tenth of one percent of BC Tel's business subscribers generate over 20 percent of the Company's interexchange revenues."[186] In general, the degree of concentration is even greater than in the US. See Table 6.

It is reported that in New Brunswick 3 percent of business customers generate 53 percent of total business revenues.[187] The twenty largest business customers in the province in 1983 contributed 32 percent of total business revenues.[188]

Given this degree of concentration, the economic incentives for large corporations to go off network will be overwhelming. It may be that the relatively small size of large Canadian corporations compared with their American counterparts, the extent of direct government participation in industry by way of crown corporations and boardroom sensitivity to adverse publicity if portrayed as undermining a valuable social institution such as universal telephone service, will inhibit bypass in the short run. In the longer run, regulators may be forced to agree with Winston Churchill's rejoinder, "You cannot ask us to take sides against arithmetic."

Table 6
BC Tel Business Interexchange Revenue Distribution[189]

Largest Percentage of Customers	Produce What Percentage of Revenue
1%	58%
5	77
10	84
20	89

The Expected Extent of Competition

Both BC Tel and Bell Canada insist that the impact of fully fledged competition in long distance telecommunications will be greater in Canada than in the US. It is emphasized that American experience, in which MCI and GTE Sprint have 80 percent of the new entrant market, shows that a large number of competitors is not a necessary pre-condition for significant market impact. It is also suggested that because of market targeting and selective penetration AT&T competitors' 8 percent of market underrepresents the true impact of competition.[190]

With respect to the Canadian environment, it is suggested that knowledge of the US experience has spilled over into this country and Canadian exposure to advertising by competitive long distance carriers will accelerate the rate of penetration. As well, competitors here will be able to learn from the relative successes of different marketing strategies adopted to the south. Moreover, many Canadian businesses are subsidiaries of US firms which are familiar with the use of alternate competitors' services. These Canadian businesses would be encouraged to replicate the experience of the parent company.[191] It is also suggested that CNCP with its established national network and presence in the market for a number of years will make for high penetration even under a restricted entry, duopoly scenario.[192]

Finally, it is urged that it is most important to bear Canadian demographics in mind. Bell Canada points out that its market is more vulnerable to competition because of the degree to which toll revenues are derived from customers concentrated in the single, narrow Quebec City – Windsor corridor in which CNCP already has network facilities.[193] BC Tel points out that if CNCP were to introduce competition in but seven locations in British Columbia this would result in 45 percent of total BC Tel interexchange revenues becoming competitive.[194]

From a carrier perspective this means that without a massive rebalancing of rates there will be serious revenue loss with competition. However, any abrupt move to bring local rates into line with costs might well threaten the telephone industry's greatest achievement – universal service.

Lifeline Rates and Universal Service

In its submission to the Royal Commission on the Economic Union and Development Prospects for Canada (the Macdonald Commission) CNCP Telecommunications cautioned that commitment to universal service should not be allowed to stand in the way of progress.

> Among the policy issues concerning availability, there is one which must be dealt with as a matter of some urgency. Public policy in the past has focussed on keeping the price of access to basic telecommunications service (local telephone service) as low as possible, in order to achieve universal service. We acknowledge the goal of making available a technically superior standardized service at reasonable prices to as many Canadians as possible. But we believe strongly that the pursuit of this goal must not be allowed to restrict unduly the flexibility of choice in the new, often customized, applications of telecommunications media.[195]

In view of the critical importance of this conflict between old and new goals, it might have been expected that carriers would have fully developed proposals to ameliorate its impact. In practice, the threat to universality is raised largely as a scare tactic. Thus NB Tel refers to studies of the impact of increases in local rates to suggest that demand for local service is not completely price inelastic and "... significant price increases will produce a definite reduction in the number of customes who subscribe to basic telephone service. They also indicate that the impact is not equal throughout society. Certain socio-economic groups (low or fixed income) will be affected to a greater extent than others."[196] There were to be no proposals as to techniques which might reduce any drop off from basic service. While Bell Canada and BC Tel have at least addressed this issue they have done little to analyze what may be needed by way of targeted subsidies.

Bell Canada in its submission to the CRTC interexchange proceeding was firmly of the view that there should not be a continued subsidy from long distance subscribers. At the same time, it was very vague as to any alternative source of support.

> If it should appear that there are persons who are unable to afford ordinary telephone service the problem could be handled through the various alternatives available to society in similar cases, in order to maintain universal service.[197]

Or, as it was to suggest later in its submission:

> If there is need for some form of subsidy system to maintain universal service, the Company suggests that the first step is to determine which, if any, segments of society should be subsidized and for which particular services. There would be a number of alternatives to provide the necessary funds for subsidies.[198]

BC Tel was equally insistent that subsidies to maintain access must come from "public sources"[199] and quite as vague as to exactly where these subsidies might come from, the basis on which they would be granted and any possible role of the telephone company in their distribution.[200]

The most useful analysis of the alternatives for maintaining low access rates is that of Leland Johnson.[201] He points out that at the outset a key challenge is to decide who should receive low rates. This requires a choice between three views about distributional equity. The first is that equity is achieved if rates are kept low for low-income subscribers. The second is that equity is achieved if help is accorded subscribers with particularly high line costs e.g. rural subscribers. The third is that equity is achieved if rates are kept low for all residential subscribers.[202]

With respect to low income subscribers "... the basic task boils down to maintaining low rates ... and finding a way to subsidize service to them in a way that minimizes economic efficiency losses."[203] Two approaches are raised but dismissed as being politically infeasible – an expanded food stamp program and a low-interest rate loan program especially for rural areas.[204] Given current Canadian concerns for expanded social welfare programs *and* budget cutting it is likely that some Canadian version of Johnson's first two proposals would also be politically unattractive. More attractive, because it involves no direct government expenditure although somewhat compromising economic efficiency, is the notion of cross-subsidization between local telephone usage and access.

> Although it has many variants, this approach involves basically a flat subscriber fee for network access and a charge for local calls. Thus, the price of access can be set below its marginal costs, and the revenue shortfall can be compensated by raising the rates for at least some local calls above their marginal costs. This approach is attractive because, not requiring explicit subsidies from taxpayers, it is politically more palatable than the ones discussed above. But it would involve an efficiency loss since at least some local calls would have to be priced above their marginal costs to provide the subsidy.
>
> If a given level of subsidy is to be provided, is it better to cover it by raising the rates for local calls above their marginal costs or by raising the rates for long-distance services above their marginal costs (the approach used today)? To the extent that the demand for local calling is less price-elastic than that for long-distance service, imposing the subsidy on the former would result in a smaller social welfare loss. However, the cost of metering local calls may partially or fully offset this advantage, depending on the characteristics of individual exchanges.
>
> Moreover, this approach would perform less well than the ones above in targeting low-income subscribers. Because the access charges would be lower than marginal costs, the total amount of subsidy would rise for all who desire the usage-sensitive service (unless telephone companies could discriminate by income tests or other qualifications), and therefore would exacerbate distortions between prices and marginal costs for local telephone calls.[205]

It may be that until such time as the carriers are much more explicit as to what they mean by a public subsidy, this type of continued cross-subsidy, with all its faults, is the most likely to emerge as cross-subsidies are wound down from long distance. It seems more attractive than any attempt to support either of the other two groups.

As for high line cost subscribers, it might be possible to continue some form of charge on long-distance carriers to maintain a Universal Service Fund. However, this would create an incentive to resort to uneconomic bypass. This might be avoided by way of a tax on terminal equipment, but this will discourage the use of lower-cost telecommunications whose adoption would help stimulate economic efficiency. As well, the benefits of taxing business users for residential subscribers would be illusory to the extent that business users pass the tax on to their customers in the form of higher prices.

As for a target of all residential subscribers, such a subsidy was considered to be no longer sustainable in face of new technologies developed to permit users to bypass local and intrastate toll telephone facilities.

> In summary, distributional equity for low-income groups could probably be achieved without seriously compromising the goal of economic efficiency through schemes that target these groups and involve taxpayer rather than telephone user support. But because they involve politically difficult legislative action, they would be hard to implement. Taxpayer support would be even harder to mobilize for a larger subsidy program to keep prices low for all residential subscribers. For this reason, it is likely that we will continue to rely on cross-subsidization, of one form or another, in response to upward pressures on local telephone rates.[206]

As Johnson himself realized, such targeting of low-income subscribers will raise difficult legal issues.[207] Indeed, the CRTC, and its predecessor regulatory agency, have already had some experience in this regard. In 1975, BC Tel applied for a substantial rate increase but asked that a 50 percent discount apply on basic services provided to residence subscribers 65 years or older and who were receiving the federal guaranteed income supplement. This proposal was rejected on the grounds that it was unjustly discriminatory in nature contrary to s.321 of the *Railway Act*.[208] The special rate treatment afforded disabled subscribers was distinguished on the grounds that it was "different in kind" in that it made access possible. It is also possible that the Commission was aware that there are relatively few disabled subscribers compared with elderly poor.[209]

Soon after the CRTC took over the regulation of telecommunications in 1976, it ordered Bell Canada to explore the potential of a "lifeline" service, i.e. one in which a very limited number of outgoing calls may be made for a low monthly charge.[210] The company did so only very reluctantly[211] and in the end two party service was accepted as the only means of providing low-price telephone service.[212] However, the Commission made it clear that it was not well disposed towards any eligibility tests as prerequisites for an economy service.[213]

In its 1981 general rate increase application, the company suggested an exemption from the proposed increase for residential subscribers 65 or older and beneficiaries under the federal guaranteed income supplement. This was again rejected as unjust discrimination.[214]

It is clearly difficult to reconcile targeted subsidies and the general public utility principle of non-discrimination. What is needed is some notion of "benign discrimination". As the *Charter of Rights* provides equality does not ". . . preclude any law, program or activity that has as its object the amelioration of conditions of disadvantaged individuals or groups . . .".[215] Such a notion has been carried over into *The Public Utilities Review Commission Act* in Saskatchewan in 1982.[216] The Act provides that in setting rates for non-competitive telephone services, the Commission in determining whether proposed new rates are "reasonable and justified" shall have regard to:

> any policies with respect to the design or structure of its rates, including policies which may give preference to certain persons, groups or classifications that, in the opinion of the commission, are related to the responsible performance of the corporation's powers and duties.[217]

The whole issue of a means test will have to be squarely faced if the "ski chalet" absurdity is to be avoided. It might be possible to follow the example of NY Tel which has applied to the New York State Public Service Commission for approval of a proposal which involves a lifeline service targeted *only* to needy subscribers. Basically its approach to the means test problem is to tie eligibility for lifeline service to the five principal entitlement aid programs in the state. Subscribers will be notified of the new service and will be sent a certification form. If interested, they must complete the form and mail it to the telephone company.

The company will confirm eligibility by accessing a computer file of welfare recipients.[218]

This approach will not be acceptable to some advocacy groups such as TRAC whose Executive Director, Samuel Simon has had this to say about it.

> Our opposition to the means test stems from the arbitrary nature of welfare standards and the likelihood that any such test will miss many people who deserve and need lifeline but who are either not on welfare or who find disclosure of their welfare status an invasion of privacy. We don't want the telephone company to have a list of people who by nature of the service are classified as "welfare people".[219]

Yet the alternatives seem even less attractive. First, someone has to determine eligibility and it would be inappropriate to delegate such a task to the telephone company. Second, if the telephone company were to design a somewhat more liberal means test, it would then have its own list and as a private corporation would be exercising an essentially governmental function. Third, the only apparent response which would satisfy TRAC would appear to be some form of universal subsidy which has been shown to be both inefficient, inequitable and in an age of bypass, unobtainable.

A start will have to be made to apply the criteria commonly adopted in evaluating redistributive schemes.[220] First, administrative cost. Second, "target efficiency", i.e. the degree to which the actual redistribution coincides with the desired redistribution. Third, "allocative efficiency", i.e. incentive effects. Fourth, non-demeaning benefits, i.e. provision of benefits in a manner least likely to stigmatize or destroy self-respect. Fifth, taxpayer vs. consumer sovereignty, i.e. those providing a subsidy may only be willing to do so if their contribution adds to purchasing power in a specific way (telephone stamps) as opposed to cash grants allowing for choice (family allowance).

These considerations will no doubt be very novel to telephone company rate design experts. Yet if rate rebalancing is going to be on the scale the telephone companies themselves suggest, they are going to have to learn what is involved in designing a safety net. Pious platitudes about subsidies from "public sources" will just not do.

More closely related to conventional rate design is the question of usage sensitive pricing.

Usage Sensitive Pricing

The telephone industry is characterized by flat rate non-usage sensitive pricing for local calling, while in long distance calling duration, time of day and distance are all used to measure rates on a usage basis. A usage sensitive scheme for local calling is known as Local Measured Service (LMS). While LMS is not directly concerned with the maintenance of universal service in that it does not provide for any subsidies, it should be noted that the availability of measured service appears to have an important bearing on the universal service question.

Perl reports that when flat rate is the only option, increasing access prices by $20 results in a 7.6 percent decline in penetration. But if measured rate local service is available (at a $6 access price and 10 cent charge for local calls), the same increase in the flat rate price decreases demand by only 2.2 percent. "Clearly many consumers, who would be driven off the network if all access prices rise, will simply move to a lower cost option if only the flat rate rises. This suggests that telephone demand depends primarily on the minimum charge for access and as long as some low cost option exists, penetration will be quite high even if high prices are charged for more enriched grades of service."[221] Or as Punch observed back in 1846, "You pays your money and you takes your choice."

While neither Bell Canada nor BC Tel has formally committed itself to LMS, it would appear that that is the direction in which they wish to proceed. As Bell Canada put it in its submission in the interexchange competition proceedings, ". . . LMS is seen to be a natural outgrowth of the principle of setting rates and charges consistent with corresponding cost."[222] And as it further observed,

> On the local services side, the existing flat rate structures and levels have provided little incentive for Canadians to exercise restraint in their use of local facilities.[223]

While no doubt economically perspicacious this seems hardly a politically astute way of setting about taking away "free" local calling which has come to be regarded as something of a "Canadian birthright".

The extent of opposition to any change from flat rate to measured local service was very evident at the conference on "Local Telephone Pricing: Is There a Better Way?" held in Montreal, May 2-4, 1984 and sponsored by the CRTC and the Centre for the Study of Regulated Industries, McGill University. While the telephone company spokesmen emphasized the benefits of LMS – consumer choice, equity as between users, efficient use of the network and the opportunity to market new local services – consumer and business representatives raised a whole range of concerns including privacy with detailed billings (and incomprehension without such detail), cost of measuring, impact on elderly and low income groups, charitable and volunteer work as well as on established patterns of doing business.[224]

The most immediate problem is going to be the greater complexity of the subscriber's monthly bill. A pamphlet entitled, "What is LMS?" produced in August, 1984 by Bell Canada Corporate Public Relations, seeks to explain what will be involved in the shift to usage sensitive pricing. It disconcertingly includes two crucial errata pasted on the inside of the back cover which in itself goes far to undermine any reassurance one is supposed to obtain on reading this publication. As well, it is written at too high a level of sophistication. For instance, it is unlikely that even a well informed consumer will understand the following: "Generally LMS is introduced as a *change in rate structure only* with no increase in the rate of return requested in the application. The net revenue picture remains static before and after LMS introduction."[225] Perhaps a simple statement that the Company will not make any more money under LMS would be more appropriate. Not many people outside of telephone companies know of, or care about, "rate structures" or "rate of return". As well, its references to calling patterns in Baton Rouge and GTE Illinois territory are surely going to have to be replaced with some down-home examples.

Even less reassuring is the example of what may, or may not, be a typical LMS bill.[226] See Table 7.

The accompanying copy explains:

> Here's an example illustrating how charges might appear. This sample bill is printed on two pages. (Table 7)
>
> Under "Detail of Current Charges" five sets of figures appear, a monthly service and equipment charge (access) and a local usage charge plus directory assistance, itemized calls (long distance) and tax.
>
> Details of the local usage item would be found on page two of the bill:

Table 7
Sample of Typical LMS Bill

613 787 9130 322 747-R3Q0 Jan 2, 1984		Page 1
BILLING INQUIRIES CALL 613 370-6400		
TO PLACE AN ORDER CALL 613 587-8930		
TOTAL AMOUNT OF LAST BILL		10.36
LESS PAYMENTS APPLIED THRU JAN 5, 1984		10.36 CR
ZERO BALANCE (THANK YOU FOR YOUR PAYMENT)		.00
DETAIL OF CURRENT CHARGES		
MONTHLY SERVICE & EQUIPMENT	JAN 2 THRU FEB 3	8.65
LOCAL USAGE	- SEE PAGE 2	3.88
DIRECTORY ASSISTANCE	- SEE PAGE 3	
ITEMIZED CALLS	- SEE PAGE 4	
TAX:		
TOTAL CURRENT CHARGES	* * * DUE FEB 01 * * *	
1003 1011	TOTAL AMOUNT DUE	12.53

613 787-9130 322 R3Q0JAN 2 1984 Page 2

DETAIL OF LOCAL USAGE

			8AM-9PM NO DISCOUNT		9PM-11PM 35% DISCOUNT		11PM-8AM 60% DISCOUNT		
CALL AREA	CALL RATE	ADDL MINS RATE	CALLS	ADDL MINS	CALLS	ADDL MINS	CALLS	ADDL MINS	AMNT
A	4¢	1¢	127	0	18	0	49	0	7.76
B	5¢	1.5¢	1	0	1	2	3	0	.28
C	6¢	2¢	6	1	0	0	11	10	1.24
D	7¢	3¢	0	0	0	0	1	11	.40
CHARGES				5.51		.80		3.37	9.68
DISCOUNT						.28		2.02	2.30
NET CHARGES				5.51		.52		1.35	7.38
					LESS USAGE ALLOWANCE				3.50
					TOTAL LOCAL USAGE CHARGE				3.88

> In the first column, call areas within four mileage bands are identified. The call rate (which is the charge for connecting a call and for the first minute on the line) and the additional minutes rate for each call area are indicated in the next two columns. The following six columns record the call minutes measured during each discount period. The final column provides a total which cross tabulates with the "Charges, Discount and Net Charges" information at the bottom of the bill. Note there is a $3.50 usage allowance built into the access charge so a deduction is made prior to the final tally of $3.88.
>
> There is no such thing as a "standard" LMS bill.
>
> This sample contains most of the elements one might expect in an LMS bill but it is not necessarily typical.[227]

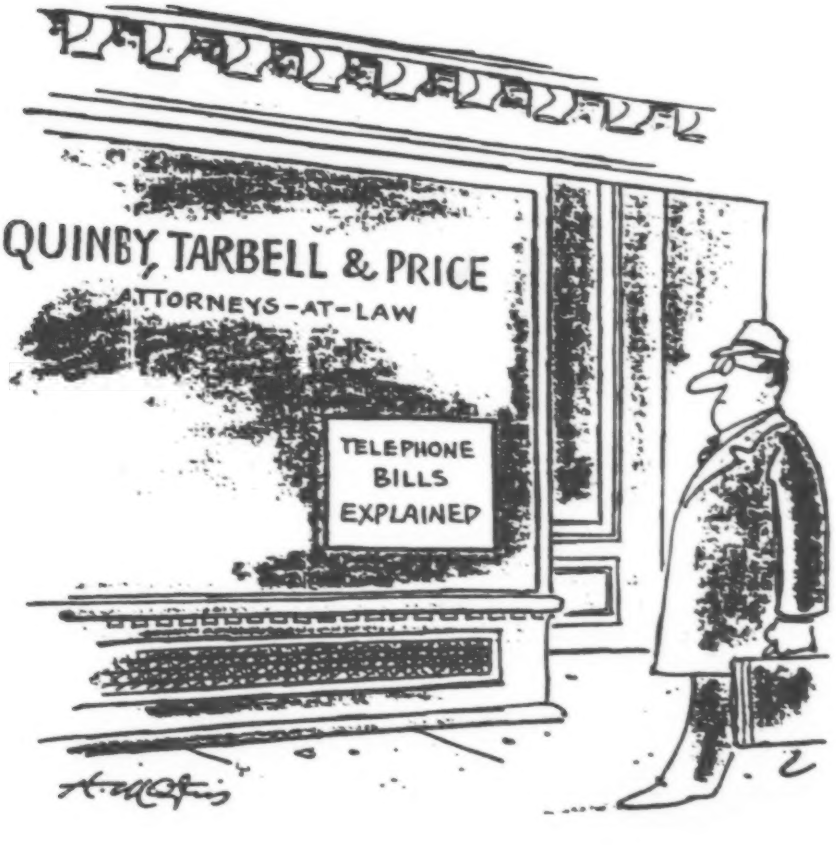
With a choice of different long distance suppliers, "unbundled" rates for telephone equipment and area, time of day and duration measurement for local calling, the resultant complexity may even provide welcome new opportunities for lawyers. See Figure 2.

Conclusion

It is said that when the British troops moved out to surrender to the Americans at Yorktown their band played a contemporary popular air "The World Turned Upside Down". That tune would also be appropriate in present-day telecommunications. A world of monopoly and stable technology has been supplanted by competition and volatile technology. It now seems ironic to recall the urgings of consumer advocates of less than 10 years ago whose pleas for cost based pricing were rejected as displaying absolutely no understanding of the nature of the telephone industry.[228] Now, telephone companies sing the praises of cost based pricing with all the enthusiasm of the recent convert.[229] The pity of it is that the writing was not seen on the wall and transitional moves initiated a decade ago.

The thrust of public policy must now be to turn the inevitable into a creative opportunity. Rather than fight a losing rearguard action against competition, we should welcome it. The explosive convergence of computers and telecommunications carries with it immense opportunities for new productivity and industrial competitiveness. But it is going to require massive change, and unless there is complete abdication to technological determinism, this will require some protection for the losers and not simply unrestrained opportunities for the winners. Yet, as Leland

Figure 2
Cartoon From the New Yorker, April 16, 1984


QUINBY, TARBELL & PRICE
ATTORNEYS-AT-LAW
TELEPHONE
BILLS
EXPLAINED

Johnson reminds us, our overall approach should not be one of doom and gloom as there will be more winners than losers.

> Moving beyond the current controversies, we should remember that our dilemma has been brought on by our good fortune. The new technologies responsible for the transformation of industry are, overall, cutting the cost of transmitting information dramatically and stimulating a badly needed increase in the nation's productivity. Like the robot welders on GM's assembly lines, the new telecommunications technologies will benefit society as a whole. But not everyone will be better off—and that is why the problems arise.[230]

While it is of the utmost importance that regulators be very aware of the rate of change which confronts them, it is important not to be swept away by all the hyperbole. A word of caution from the US should be kept in mind. "The revolution is clearly underway, but it is just beginning to make inroads in the most densely populated urban areas. To claim the revolution has already happened may be useful in rallying the troops but it does not mean that the fight is over, or that the public's lot has been improved."[231]

What is called for now is regulation with a more subtle and deft touch than was ever needed for "good old" rate base, rate of return regulation. Yet not only does Canada have a totally inappropriate federal-provincial jurisdictional situation, but within the federal sphere there continues to be confusion as to who should take the initiative in policy making.

On the one hand, John Meisel in the *CRTC Annual Report 1982-1983* announced that he believed that policy should be formulated by the Cabinet, approved by Parliament and implemented by the CRTC. However, he noted that, in practice, important policies are formulated by the CRTC. These may or may not reflect the priorities of government. He felt that the best answer would be to have directives issued with respect to policy.[232] Legislation which would have provided for directives was indeed introduced in Parliament in February, 1984, but it never got beyond first reading before the federal election was called.[233]

On the other hand, as we have seen, the CRTC has responded to the Economic Council of Canada's criticism of too much incrementalism in policy making with respect to competition in telecommunications by way of a deliberately broad issue hearing approach. In the meanwhile, the Department of Communications is holding its own inquiry into the very same issue of interexchange competition.[234] Despite the obvious similarities between the issues being addressed in the two proceedings, they appear to be moving on parallel tracks with little contact or cooperation with each other.[235]

The most urgent need at this stage is to involve Parliament. As American experience makes so clear, any further shift to competition will have major political repercussions. Parliamentary involvement must not be delayed pending the drafting of new legislation. What is needed is much more on-going involvement. An excellent precedent may be found in the 1982 House of Commons Standing Committee on Transport report, *Domestic Air Carrier Policy*.[236] Although initially ignored by the government, it was eventually implemented in 1984.

The essentially educational and exploratory nature of the hearings which are needed was well exemplified by the influential 1981 congressional report, *Telecommunications in Transition*. As Representative Wirth, chairman of the subcommittee on telecommunications, indicated, the purpose of the report was to educate and not provide a blueprint for legislation.

> The report will provide ... background and data which will be extremely useful to us as we begin the difficult task of rewriting and updating the Communications Act to reflect almost 50 years of technological change. In particular, the information contained in the report will help members to resolve complex issues of common carrier policy in a reasoned and informed manner.[237]

While parliamentary committees cannot be equated with congressional committees, this type of upgrading of knowledge of the issues is going to be critical. And a parliamentary committee is much to be preferred over a royal commission.

Criticism of Canadian policy making processes should not be taken as suggesting that there are not similar policy stand-offs in the U.S. Far from it, as the following exchange between Senator Packwood, Chairman of the Senate Committee on Commerce, Science and Transportation and Mark Fowler, Chairman of the Federal Communications Commission, graphically illustrates:

> Chairman PACKWOOD. Now, in your statement you indicate the Federal Communications Commission acts under a congressional mandate, and you read the directive, "to provide service as far as possible to all the

> people of the United States" and "it should be a rapid, efficient, nationwide service with adequate facilities at reasonable charges", correct?
>
> Mr. FOWLER. Yes, sir.
>
> Chairman PACKWOOD. And, indeed, you are a creature of Congress and you are to attempt to administer, in this case the telecommunications laws, in accordance with what you think Congress has intended.
>
> Mr. FOWLER. With true fidelity, yes, sir.
>
> * * *
>
> Chairman PACKWOOD. Now for years you have followed this policy of subsidizing rural and residential rates with long distance charges, acting on what you thought was Congress mandate, and Congress never said anything. We seemed reasonably happy with it.
>
> What has given you the impression that Congress has changed its mind as to what we want you to do?
>
> Mr. FOWLER. That is a very good question, Mr. Chairman. I probably should engage in a little history here. . . .[238]

While not wishing to in any way underplay the difficulties which lie ahead, it would appear on viewing the US scene a year after the original draft of this study that local rates are not going to increase to the astronomical levels originally forecast.[239] There will no doubt be substantial increases, but not so as to create a rate shock sufficient to knock large numbers of people off the network.

As well, it would seem that Canadian regulators may be able to avoid the controversial access charge issue, at least for a while. Despite the very high estimates of the impact of competition in Canada produced by the telephone companies it may well be possible to introduce further competition without instantly dismantling the cross-subsidy system. It may also be that the growing ban on intra-LATA competition in the US indicates a route which could be followed in Canada by which the smaller and more vulnerable telephone companies would be at least temporarily shielded from competition.[240]

While there may thus be more breathing space than initially envisaged, it is critically important that regulators recognize that, "The best test of whether competition can replace regulation is to give competition a chance."[241] This will require a frank recognition of the inevitable limits of regulatory competence, for, as the Charles River Associates report has warned, "To identify the dangers of competition in advance of the facts, especially in an industry undergoing as much technological and market change as telecommunications, would require a prescience denied to most individuals, not excluding regulators."[242]

On a more positive note, it is possible to offer regulators three modest pieces of advice. First, seek to make sure that competition in long distance provides benefits to average residential subscribers and not just to large corporations. This would indicate that reselling and sharing should be dealt with as soon as possible. Nothing will ameliorate political repercussions as effectively as the immediate prospect of some reduction in the long distance bills of "little people". Second, as Alfred Kahn has urged, ". . . emphasize and reemphasize the inequity of mindless, unfocussed subsidizations."[243] Third, follow closely the understated but vital advice of Andrew Margeson of Rochester Tel, "It seems important . . . that local price increases be closely linked to toll price decreases so that the public clearly understands what is taking place."[244]

Notes

1. See Hudson Janisch and Manley Irwin, "Information Technology and Public Policy: Regulatory Implications for Canada" (1982), 20 *Osgoode Hall L.J.*, p. 610.

2. *Ibid.*, p. 611. And see Lawrence Surtees, "Telecommunications knows no bounds", *Globe and Mail*, July 28, 1984, p. B1 col. 1.

3. John R. Meyer et al., *The Economics of Competition in the Telecommunications Industry*, Cambridge Mass., Oelgeschlager, Gunn and Hain, 1980, p. xvii.

4. NB Tel, *Memoranda of Evidence, In the Matter of a Hearing to Review Issues Relating to Interconnection in the Telecommunications Industry in New Brunswick*, Board of Commissioners of Public Utilities of New Brunswick, April 1984, Evidence of Richard Schultz, p. 62.

5. William H. Melody has been a persistent dissenter. See, for example, "Cost Standards for Judging Local Exchange Rates", in 1983 MSU Public Utilities Papers, *Diversification, Deregulation, and Increased Uncertainty in the Public Utilities Industries*, East Lansing, Institute of Public Utilities, Michigan State University, 1983, p. 474. And see Nina W. Cornell et al., "A Legacy of Regulatory Failure", Regulation, July/August 1983, p. 37.

6. It is important to note that AT&T divestiture was not based on any definitive finding with respect to cross-subsidies. As Judge Greene conceded in *United States* v. *American Tel & Tel Co.*, 552 F. Supp. 131 (1982) at 169, fn. 160: "There had been conflicting evidence at the trial ... whether local telephone service has ever actually been subsidized as AT&T has consistently claimed ... since the trial was aborted by the settlement no final decision was reached on this issue."

   Accurate measurement would require an auditable cost allocation system. This has still not been achieved after 12 years of intensive effort in Canada. See *Report of the Inquiry Officer With Respect to Telecommunications Carriers' Costing and Accounting Procedures: Phase III – Costing of Existing Services*, Ottawa, CRTC, April 30, 1984.

7. For a lucid articulation of these principles see F.W. Waller, *Statement on Rating Philosophy,* Exhibit c/28, Nova Scotia Board of Commissioners of Public Utilities, Rate Application by MT&T, 1974, *Why System-Wide Pricing? ibid.*, Exhibit c/29. And see c. 3, "Pricing", *The Economics of Competition in the Telecommunications Industry,* above, note 3, pp. 75-109.

8. See, for example, *Bell Canada General Increase in Rates, 1982 Part B – Memorandum of Support,* June 28, 1982, Exhibit B-82-600, "Memorandum on Rates".

9. Above, note 7, Exhibit c/28 p. 2.

10. NB Tel, *Memoranda of Evidence,* above note 4, evidence of W.H.R. Smith, p. 55.

11. Alfred E. Kahn, "The Road to More Intelligent Telephone Pricing" (1984), 1 Yale J. Regulation, p. 139 at p. 153.

12. Bell Canada, *Memorandum of Evidence, CRTC Telecom Public Notice 1984-6, Interexchange Competition and Related Issues,* April, 1984, p. 6.

13. BC Tel, *Memorandum of Evidence, CRTC Telecom Public Notice 1984-6, Interexchange Competition and Related Issues,* April, 1984, p. 8.

14. The notion of "taxation by regulation" derives from Richard Posner, "Taxation by Regulation" (1971), 2 Bell Jour Economics, p. 22.

15. BC Tel, *Memorandum of Evidence,* above, note 13, p. 16.

16. See Bell Canada, *Memorandum of Evidence,* above, note 12 at pp. 5, 17-19, BC Tel, *Memorandum of Evidence,* above, note 13 at pp. 3, 17.

17. The most eloquent exponent of this view is Manley Irwin, *Telecommunications America: Markets Without Boundaries,* Westport Conn., Quorum Books, 1984.

18. "Telecommunications", *Globe and Mail,* Jan. 7, 1984, p. 5, col. 2.

19. Consider the language of Judge Greene in the AT&T diverstiture case, "Neither the Court nor those who object to the decree can halt the electronic revolution any more than the Luddites could stop the industrial revolution at the beginning of the last century." Above, note 6, at p. 175.

20. Bell Canada, *Memorandum of Evidence*, above, note 12 at p. 11. And, as it stated at page 54, "Efforts by the Company *or the regulator* to impose rate relationships which are unrelated to cost will be frustrated. Technology will enable customers and competitors to circumvent such artificial barriers." (Emphasis added.)

21. BC Tel, *Memorandum of Evidence*, above, note 13 at p. 12.

22. Shareholder companies are responsible for over 70 percent of all telecommunications revenues. See, D.O.C., National Telecommunications Branch, *Canadian Telecommunications: An Overview of the Canadian Telecommunications Carriage Industry*, Ottawa, July, 1983.

23. See, for example, M. Dondoux, Director General of Telecommunications, Ministry of Post and Telecommunications, France, Keynote Speech, *Changing Market Structures in Telecommunications: Proceedings of an OECD Conference held 13-15 December 1982*, Amsterdam, North Holland, 1984, p. 47.

24. Marino Benedetti, "A European Perspective", 12th Annual Telecommunications Policy Research Conference, Airlie, Virginia, April, 1984. And see, Ernst Weiss, "Liberalization in Europe Moving Ahead – Slowly and Cautiously", Telephony, Sept. 26, 1983, p. 50; OECD, *Telecommunications Pressures and Policies for Change*, Paris, 1983, and Ergas and Okayama (eds), *Changing Market Structures in Telecommunications: Proceedings of an OECD Conference held 13-15 December 1982*, above, note 23.

    Government ownership carries with it the risk that monopoly telecommunications earnings will simply be regarded as a convenient source of government revenue. Consider the current situation in France where telephone rates have been put up 25 percent in one year to bring in an extra 8 billion francs which is needed to cover President Mitterand's promise to cut direct taxes. "The unions, the Communists and even many Socialists are outraged by what they see as a totally unsocialist and hypocritical measure. They complain that the Government is simply taking away with one hand what it is giving with the other, and the worst-off will suffer most." "Storm of protest as French phone charges rise again", *The Times*, July 28, 1984, p. 5, col. 7.

25. Bell Canada, *Memorandum of Evidence*, above, note 12, p. 24.

26. For instance, in Saskatchewan an amendment was made to the *Telecommunications Act* prohibiting the attachment of any equipment without Sask Tel permission. As well, even the advertising or selling of such equipment was prohibited. Statutes of Saskatchewan 1979-80, c. 95, s. 44.3.

    In Manitoba, the *Telephone Act* was amended in 1980 to make any agreements respecting interconnection subject to approval of the provincial cabinet. Statutes of Manitoba 1980, c. 76, s. 44.1(1). As well, in 1983 MTS's monopoly with respect to the provision of telecommunications services throughout the province was given a specific statutory basis. Statutes Manitoba 1982-83-84, c. 66.

27. It should be noted, however, that Sask Tel is constructing a 3,400 kilometre, province-wide integrated fibre optics broadband network. "When completed in 1984, this digital network will link 52 of Saskatchewan's largest communities and provide integrated telecommunications services to over half of the province's residents. The network is part of Sask Tel's goal of establishing an all-digital telecommunications network in the province by the year 2000." Telecom Canada, *The Information Movers*, Ottawa, 1983, p. 12.

    For a description of what would be involved in a full-scale integrated digital network, see Yasusada Kitahara, *Information Network System, Telecommunications in the Twenty-First Century*, London, Heinemann, 1983.

28. Mercury was originally a consortium of British Petroleum, Barclays Bank and Cable and Wireless. Recently Cable and Wireless increased its stake to 100 percent, a move expected to make Mercury a more formidable competitor with British Telecom. See "Mercury Gets Wings", *The Economist*, June 30, 1984, p. 48, col. 3, "Cable and Wireless Will Buy Full Control of British Telecom's Sole

Competitor", *Wall Street Journal,* Aug. 15, 1984, p. 35, col. 1.

29. For recent developments see "All clear for British Telecom", *The Times,* June 27, 1984, p. 15, col. 2, and a series of three articles on British Telecom, "Safeguards in licence to protect consumers' interests", "Fears on watchdog dual role", "Sale of British Telecom Shares", *The Times,* Aug. 6-8, 1984.

30. *NTT 1981/82 Annual Report,* pp 2-3.

31. *NTT 1982/83 Annual Report,* p. 1.

    For a review of these developments see NTT Publication G-114, *Outline of Telecommunications Reform in Japan,* Tokyo, July, 1984.

    And see H. Janisch and Y. Kurisaki, "Reform of Telecommunications Regulation in Japan and Canada", *Telecommunications Policy,* March, 1985, p. 31.

32. *Telecommunications America,* above, note 17, p. 125.

33. See "Information Technology and Public Policy: Regulatory Implications for Canada", above, note 1.

34. Above, note 4 at pp. 74-75.

35. Above, note 6 at 149.

36. *CRTC Annual Report 1981-1982,* p. ix.

    Charles Dalfen, while still Vice-Chairman of the CRTC well articulated the limits of Canadian commitment to competition. "Competition is not an end in itself; rather it must serve the attainment of other policy goals. The provision of high-quality low-priced, diverse telephone services, the most important of which is universal basic telephone service to the general public, remains the chief aim of the Commission and the justification for the regulation of the carriers. Only to the extent that competition can serve these goals should it be permitted." "Competition and Interconnection in the Canadian Telecommunications Industry", in *Kommunikation ohne Monopole,* Baden-Baden, Nomas Verlagsgesellschaft, 1980, p. 73 at p. 87.

37. John Lawrence, "Competition and the Pursuit of National Goals in the Telecommunications Industry", *Policy Issues in the Canadian-American Information Sector: Proceedings of a Conference jointly organized by the Center for Telecommunications Studies, The George Washington University, the Centre for the Study of Regulated Industries, McGill University and The Royal Bank of Canada, Montreal, November 17-18, 1983*, Montreal, Centre for the Study of Regulated Industries, McGill University, 1984, p. 166 at p. 168.

38. *Notes for a Statement by Francis Fox, Minister of Communications, to the House of Commons Standing Committee on Communications and Culture*, DOC Information Services, May 26, 1983, pp. 6-7.

39. Ibid., p. 7.

40. "Jefferson Steers British Telecom towards Privatization and New Competitive Markets", *Telephony*, Jan. 23, 1984, p. 24.

41. Jack Harvey, "The Emerging Agenda: Response by the Carriers", *Policy Issues in the Canadian-American Information Sector*, above, note 37, p. 66 at p. 67.

42. William Brock and David Evans, "Predation - A Critique of the Government's Case in US v. AT&T", Evans (ed.), *Breaking Up Bell, Essays on Industrial Organization and Regulation*, New York, North Holland, 1983, p. 41 at p. 46.

43. The most strident call to arms may be found in the report of the Consultative Committee on the Implications of Telecommunications for Canadian Sovereignty, *Telecommunications and Canada*, Ottawa, Minister of Supply and Services Canada, 1979 (popularly known as the "Clyne Report" after its chairman, the Hon. J.V. Clyne).

44. This is the common theme running throughout the reports of the Restrictive Trade Practices Commission, *Telecommunications in Canada, Phase I Interconnection*, Ottawa, Consumer and Corporate Affairs Canada, 1981; *Telecommunications in Canada: Part III, The Impact of Vertical Integration on the Equipment Industry*, ibid., 1983.

45. Economic Council of Canada, *Reforming Regulation 1981*, Ottawa, 1981, p. 49.

46. CRTC Telecom. Public Notice 1984-6, *Interexchange and Related Issues*, Canada Gazette Pt. I, Jan. 21, 1984, p. 589 at p. 590.

47. *CNCP Telecommunications: Interconnection with Bell Canada*, CRTC Telecom. Decision 79-11, May 17, 1979.

48. *Attachment of Subscriber-Provided Terminal Equipment*, CRTC Telecom. Decision 82-14, Nov. 23, 1982.

49. See *Telesat Canada, Proposed Agreement with Trans-Canada Telephone System*, CRTC Telecom. Decision 77-10, Aug. 24, 1977, varied by Order in Council P.C. 1977-3152, Nov. 3, 1977; *Bell Canada, BC Tel and Telesat Canada - Increases and Decreases in Rates . . .*, CRTC Telecom. Decision 81-13, July 7, 1981, varied by Order in Council, P.C. 1981-3456, Dec. 8, 1981.

50. *Fox Announces that all Restrictions on Ownership of Transmit Earth Stations will be lifted on April 1, 1986*, DOC News Release, Ottawa, April 10, 1984.

51. For a catalogue of the services Rogers Cable hopes to provide, see University of Toronto - Waterloo Cooperative on Information Technology Newsletter, No. 12, Nov. 1983, p. 6. "Data communications" (point-to-point high speed data transmission and two-way data interconnection between institutions and businesses) and "telemetry services" (two-way data transmission of status information to central computer, low speed sequential sampling of subscriber location) will, it is expected, be provided in direct competition with telephone companies.

52. DOC, Notice No. DGTN-006-82, *Cellular Mobile Radio Policy and Call for Licence Applications*, Canada Gazette Pt. I, Oct. 23, 1982, p. 7800.

53. See H.S. Trimmer, Vice-President, Regulatory and Public Policy, MCI Communications Corp., "The Emerging Agenda, Response by the Carriers", *Policy Issues in the Canadian-American Information Sector*, above, note 37, p. 84.

54. As, for example, when Telesat provided a direct business link to Europe from Montreal thereby bypassing carriers normally involved in overseas traffic.

55. See H.N. Janisch, "Bell Canada's Reorganization: Private Interests and Public Concerns", 3 C.R.R. 5-43 (1983). The CRTC was eventually called on to inquire into Bell Canada's initiative, *Report of the Canadian Radio-television and Telecommunications Commission on the Proposed Reorganization of Bell Canada*, Ottawa, April 18, 1983. Legislation was proposed to implement this report (Bill C-20, 2nd Sess., 32nd Parl., First Reading Feb. 8, 1984) but did not proceed further before the federal election call.

56. *Notes for a Statement by Francis Fox*, above, note 38 at p. 6.

57. Letter from Francis Fox, Minister of Communications, to J.V.R. Cyr, President, Bell Canada, March 13, 1984.

58. For criticism of the assigned title, see H.N. Janisch, "Competition: An American Export - Canadian Import", *Policy Issues in the Canadian-American Information Sector*, above, note 37, p. 139 at p. 140.

59. For a useful review of this history, see CNCP, *Evidence Prepared in Support of the Application for the Interexchange of Traffic with the Public Switched Telephone Networks Before the CRTC*, April 9, 1984, evidence of J.G. Sutherland on "Technology and Industry Structure", especially pp. 8-22.

60. Peter S. Grant, "Domestic Satellites in Transborder Communications", *Policy Issues in the Canadian-American Information Sector*, above, note 37, p. 111 at p. 117.

61. *Universal Telephone Service Preservation Act of 1983, Joint Hearings before the Committee on Commerce, Science and Transportation, United States Senate, and the Committee on Energy and Commerce, House of Representatives*, 98th Cong., 1st Sess., July 28, 29, 1983, p. 37.

62. *Ibid.*, p. 42.

63. For the valuable review of this "legislative bounty" on which this section is based, see the evidence of Alan Pearce on behalf of NB Tel to the Board of Commissioners, above, note 4 at pp. 84-94.

64. *Universal Telephone Service Preservation Act of 1983*, above, note 61, p. 63.

65. See, for example, Paul MacAvoy and Kenneth Robinson, "Winning by Losing: The AT&T Settlement and Its Impact on Telecommunications" (1983), 1 *Yale J. Regulation*, p. 1 at pp. 2-14; *The Economics of Competition in the Telecommunications Industry*, above, note 3, pp. 134-143; Gerald W. Brock, *The Telecommunications Industry, The Dynamics of Market Structure*, Cambridge Mass., Harvard Univ. Press, 1981, pp. 198-233, and Stephen Breyer, *Regulation and its Reform*, Cambridge Mass., Harvard Univ. Press, 1982, pp. 288-314.

66. Above, note 4 at p. 24.

67. Mark Fowler, Chairman of the FCC, indicated that he considered the subsidy to be about $10.7 billion, *Universal Telephone Service Preservation Act of 1983*, above, note 61, p. 67. And see Leland L. Johnson, *Competition and Cross-Subsidization in the Telephone Industry*, Santa Monica, Cal., The Rand Corporation, 1982, pp. 42-48.

68. *Economics of Competition in the Telecommunications Industry*, above, note 3, p. 91.

69. For a very strong statement to this effect by Representative Wirth see *Universal Telephone Service Preservation Act of 1983*, above, note 61, pp. 90-91. For an assessment of externalities on an empirical basis which returns with a verdict of non-proven, see Lewis J. Perl, *Residential Demand for Telephone Service 1983*, NERA, Dec. 16, 1983, pp. 30-36.

70. *The Telecommunications Industry*, above, note 65 at p. 306.

71. *Universal Telephone Service Preservation Act of 1983*, above, note 61, p. 292.

72. *Ibid.*, p. 317.

73. *The Telecommunications Industry*, above, note 65, p. 305.

74. *Allocation of Microwave Frequencies in the Bands Above 890 Mc.*, 27 FCC 405 (1959). For a particularly valuable review of these developments by a former chairman of the FCC see Richard E. Wiley, "Regulatory Change and the Promotion of Competition" in Harry Shooshan (ed.) *Disconnecting Bell, The Impact of the AT&T Divestiture*, N.Y., Pergamon Press, 1984, pp. 23-46.

75. *Microwave Communications Inc.*, 18 FCC 2nd 953 (1969).

76. *MCI Telecommunications Corp. v. FCC* (Execunet I), 561 F. 2d 356 (DC Cir.), cert denied, 434 US 1040 (1977). For a highly critical assessment of these developments from an insider's perspective see Alvin von Auw, *Heritage and Destiny, Reflections on the Bell System in Transition*, N.Y., Praeger, 1983.

77. *In the Matter of Petition of American Telephone and Telegraph Company for a Declaratory Ruling and Expedited Relief*, FCC 78-142 (Feb. 23, 1978).

78. *MCI Telecommunications Corp.* v. *FCC* (Execunet II) 580 F. 2nd 590 (DC Cir.), cert. denied, 439 US 980 (1978).

79. In, for example, *Packet Communications Inc.*, 43 FCC 2d 922 (1973); *Graphnet Systems Inc.*, 44 FCC 2d 800 (1974) and *Telenet Communications Corp.*, 46 FCC 2d 680 (1974).

80. *Second Computer Inquiry, Final Decision*, 77 FCC 2d 384, 461 (1980), aff'd, *sub nom. CCIA* v. *FCC*, 693 F. 2d 198 (DC Cir. 1982), cert. denied, May 16, 1983.

81. *US* v. *AT&T*, above, note 6 at 171. He also observed that Bell had been able to keep out competition "... in large part because of its control over the local exchange facilities" (162) and "... absent such control, AT&T will not have the ability to disadvantage competitors in the interexchange and equipment market" (165).

82. *Ibid.*, at 172, fn. 173. In a day and age of resellers, AT&T has suggested that barriers to entry have truly now disappeared. It estimated that the initial investment

necessary to start a resale business was only between $150,000 and $500,000. It added that, "Northern Telecom has even published a comic book describing how virtually anybody can play the 'reseller game'." FCC, *In the Matter of Long-Run Regulation of AT&T's Basic Domestic Interstate Services, Comments of American Telephone and Telegraph Company*, April 2, 1984, p. 26.

83. *US* v. *AT&T*, above, note 6 at 169.

84. *Ibid.*, fn. 161.

85. Report of the Majority Staff of the Subcommittee on Telecommunications, Consumer Protection and Finance of the Committee on Energy and Commerce, US House of Representatives, 97th Cong. 1st Sess. *Telecommunications In Transition: The Status of Competition in the Telecommunications Industry*, Nov. 3, 1981, p. 88.

86. *Universal Telephone Service Preservation Act of 1983*, above, note 61, p. 193.

87. *Ibid.*, p. 214.

88. NB Tel, *Memorandum of Evidence*, above, note 4, p. 82.

89. *Third Report and Order*, Docket 78-72, Feb. 28, 1983.

90. Steven Flax, "The Latest Way To Foil The Phone Monopoly", *Fortune*, April 16, 1984, p. 108 at p. 109.

91. *Universal Telephone Service Preservation Act of 1983*, above, note 61, pp. 297-98. And see "Teleports: Giant Bypasses For Big City Markets", Businessweek, Aug. 27, 1984, p. 91, col. 2.

92. *Universal Telephone Service Preservation Act of 1983*, above, note 61, p. 341.

93. *US* v. *AT&T*, above, note 6, p. 175.

94. *Universal Telephone Service Preservation Act of 1983*, above, note 61, p. 297. As Manley Irwin has pointed out "... telephone bypass is nothing less than technological competition that translates into more efficient costs. Telephone companies must meet that rivalry through their

own efforts of productivity and that they are doing." *Evidence on Behalf of the Director of Investigation and Research, Combines Investigation Act, CRTC Telecom Public Notice 1984-6, Interexchange Competition and Related Issues*, p. 30. At the same time, he acknowledged that, "Perhaps no issue is as politically sensitive as the matter of telephone bypass." *Ibid.*, p. 27.

95. *Universal Telephone Service Preservation Act of 1983*, above, note 61, p. 281.

96. Above, note 90, pp. 111, 297, 341. And see "The Push to 'Bypass' Local Telephone Companies", *Business Week*, Aug. 27, 1984, p. 90.

97. *The Economics of Competition in the Telecommunications Industry*, above, note 3, p. 19.

98. Above, note 11 at p. 141.

99. *Universal Telephone Service Preservation Act of 1983*, above, note 61, p. 75.

100. *Ibid.*, p. 315.

101. *Ibid.*, p. 332.

102. Andrew J. Margeson, "Pricing Response to Increased Local Revenue Requirements", *Diversification and Deregulation*, above, note 5, p. 496 at p. 500.

103. *In the Matter of Long-Run Regulation of AT&T*, above, note 82, p. 31 (emphasis in original).

104. *Ibid.*, p. 38.

105. *Ibid.*, Exhibit 4.

106. *Ibid.*, pp. 54-61.

107. Above, note 90 at p. 112.

108. *Universal Telephone Service Preservation Act of 1983*, above, note 61, p. 43.

109. *Telematics and Government,* Norwood N.J., Ablex Pub. Corp., 1982.

110. *Ibid.*, xiv (emphasis in original).

111. *Ibid.*, p. 34.

112. *Ibid.*, p. 67.

113. *Ibid.*, p. 94. It is interesting to note that these themes have been picked up by those Canadian telephone companies which wish to resist competition. Consider the following extracts from NB Tel's *Memoranda of Evidence* above, note 4. "The Company, . . . has not evolved by responding to the needs of particular specialized interests. Rather it has evolved in an attempt to best serve the broad needs of the total customer base." (p. 36) "In reviewing the history of developments in the US, it is clear that the voice of residential subscribers has largely gone unheard and that their interests have not been taken into account . . ." p. 38, per L.J. Celeste.

114. *Telematics and Government,* above, note 109, p. 95. For a superb overview of the transition from its traditional service philosophy to competition, see Alvin von Auw, *Heritage and Destiny, Reflections on the Bell System in Transition,* above, note 76. For a review of von Auw's book see H.N. Janisch, "An Inside View of the Bell Transition", 8 *Telecommunications Policy,* 262 (Sept., 1984).

115. This table may most readily be found in the evidence of Alan Pearce on behalf of NB Tel, *Memoranda of Evidence,* above, note 4, p. 13.

116. "Should you make the break from AT&T?" *Consumer Reports,* Sept. 1984, p. 493 (Emphasis added).

117. *Impact of the FCC Access Charge Plan on the US Economy,* Wharton Econometric Forecasting Associates, Nov. 1983.

118. See, for example, *The Economics of Competition in the Telecommunications Industry,* above, note 3, p. 77.

119. Above, note 85, p. 5.

120. *Competition and Cross-Subsidization*, above, note 67, p. 42.

121. *Universal Telephone Service Preservation Act of 1983*, above, note 61, p. 105.

122. Lewis J. Perl, *Economic and Demographic Determinants of Residential Demand for Basic Telephone Service*, FCC Docket No. 20003, and AT&T/DOJ Antitrust case, Defendant's Exhibit D-4-518.

123. *Universal Telephone Service Preservation Act of 1983*, above, note 61, pp. 63-64, 73-74, 77, 89. As Fowler insisted, "Telephone rates may be increasing, but the access charge plan is not the principal reason and reversal of that plan would not cause these increases to evaporate." *Ibid.*, p. 65.

124. Above, note 67.

125. *Ibid.*, p. 56 (Emphasis in original).

126. Lewis J. Perl, *Residential Demand for Telephone Service 1983*, above, note 69.

127. *Ibid.*, p. 13.

128. *Ibid.*, figure 3, p. 11.

129. *Ibid.*, p. 77.

130. *Ibid.*, figure 12, p. 27.

131. *Universal Telephone Service Preservation Act of 1983*, above, note 61, p. 64.

132. *Ibid.*, p. 281.

133. *Competition and Cross-Subsidization*, above, note 67, p. 58.

134. *Universal Telephone Service Preservation Act of 1983*, above, note 61, p. 362.

135. *Ibid.*, pp. 371-73.

136. *Ibid.*, p. 401.

137. *Ibid.*, p. 381.

138. *Ibid.*, p. 345.

139. *Ibid.*, p. 153.

140. NB Tel, *Memoranda of Evidence*, above, note 4, p. 106.

141. *Evidence on Behalf of the Director*, above, note 94, pp. 40-41.

142. For popular accounts of these complaints, see, for example, "Breaking Up Is Hard to Do", *Time*, Jan. 16, 1984, p. 46, "Dial M for Murk", *N.Y. Times*, Jan. 30, 1984, "Letting Loose Some Monsters", *Time*, April 23, 1984, p. 58, "Heavily Reliant on Phones, Brokers Are Hit Hard by AT&T's Breakup", *Wall Street Journal*, April 30, 1984, p. 3, col. 1, "Crackles on America's once Bell-clear telephone lines", *The Economist*, May 5, 1984, p. 71, "AT&T Admits Delays to Worsen in Installing Private Phone Lines", *Wall Street Journal*, May 17, 1984, p. 6, col. 3, "AT&T: What Was It We Were Trying To Fix?" *Fortune*, June 11, 1984, "Crossed Wires, Delays Other Botches Vex Phone Customers After AT&T Breakup", *Wall Street Journal*, June 18, 1984, p. 1, col. 1, "Man Assigned to Break AT&T Logjam Says Campaign Has Started to Pay Off", *Wall Street Journal*, June 18, 1984, p. 12, col. 3.

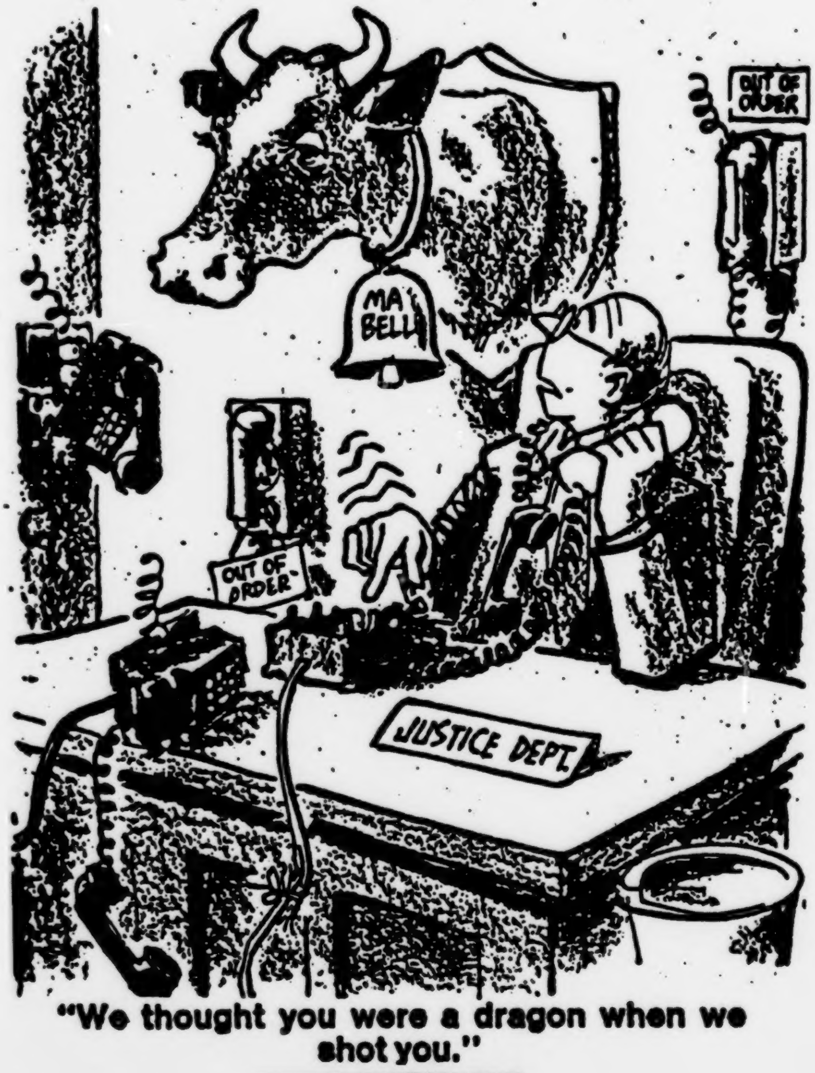
    The initial prevailing mood was well captured in a cartoon run in the *New York Times* on March 25, 1984. See Figure 3.

143. "AT&T Says Backlog For Business Circuits May Remain Until '85", *Wall Street Journal*, Aug. 22, 1984, p. 4, col. 3.

144. Much still has to be done to ensure equal access to the local switched networks, access charges have to be agreed on and the future form of regulation (if any) of AT&T has to be determined.

145. For an overview of these developments see, Charles Dalfen, "Competition and Interconnection in the Canadian Telecommunications Industry", above, note 36, Gordon Kaiser, "Competition in Telecommunications: Refusal to Supply Facilities by Regulated Common Carriers" (1981), 13 Ottawa L.R. 95, and c. 5 "Telecommunications", *Reforming Regulation 1981*, Ottawa, Economic Council of Canada, 1981.

Figure 3


MA BELL
OUT OF ORDER
OUT OF ORDER
JUSTICE DEPT.

"We thought you were a dragon when we shot you."

Bill Mauldin
Chicago Sun Times
Field Newspaper Syndicate

146. See, for example, a study for NTIA, *Telecommunications Policies in Seventeen Countries: Prospects for Future Competitive Access*, US Dept. Commerce, Washington, May, 1983.

147. For an anguished outcry at this balkanized approach see, CNCP Telecommunications, *Crisis in Canadian Telecommunications Policy and Regulation*, June, 1982.

148. See *Canadian Telecommunication: An Overview*, above, note 22.

149. *Re Bell Canada and Challenge Communications Ltd.* (1978), 86 D.L.R. (3d) 351 (FCA), leave to appeal to the Supreme Court of Canada denied, June 19, 1978, (1978) 1 S.C.R. v.

150. As in, *Bell Canada—Interim Requirements Regarding the Attachment of Subscriber-Provided Terminal Equipment*, CRTC Telecom. Decision 80-13, Aug. 5, 1980, *Attachment of Subscriber-Provided Terminal Equipment*, CRTC Telecom. Decision 82-14, Nov. 23, 1982.

151. *Re Garden of the Gulf Court and Motel Inc. and Island Telephone Co. Ltd.* (1981), 126 D.L.R. (3d) 281 (P.E.I. S.C. in banco).

152. at 295.

153. *Bell Canada Co. of Canada v. Harding Communications Ltd.* (1978), 92 D.L.R. (3d) 213 (S.C.C.).

154. at 219.

155. See *Interexchange and Related Issues*, CRTC Telecom. Public Notice 1984-6, above, note 22.

156. Bell Canada, *Memorandum of Evidence*, above, note 12, p. 6.

157. *Report of the Inquiry Officer*, above, note 6.

158. *Memorandum of Evidence*, above, note 12, p. 52.

159. *Ibid.*, p. 50.

160. BC Tel, *Memorandum of Evidence*, above, note 13, p. 7.

161. *Ibid.*, p. 2.

162. *Memoranda of Evidence*, above, note 4, evidence of W.H.R. Smith, p. 51.

163. *Ibid.*, p. 29.

164. H.N. Janisch, "Telecommunications Ownership and Regulation: Compatibility or Confusion?" 5 C.R.R. 5-23 at 5-28 (1984).

165. See *Telecom Canada Statistics 1982*, Table I.

166. "Cutting the Cord that Binds", *Globe and Mail*, Feb. 18, 1984, p. L5, col. 1.

167. *Bell Canada, BC Tel and Telesat Canada: Increases and Decreases in Rates for Services and Facilities Furnished on a Canada-Wide Basis*, CRTC Telecom. Decision 81-13 (July 7, 1981), pp. 91-92.

168. *Ibid.*, p. 139.

169. Melvyn Fuss and Leonard Waverman, *The Regulation of Telecommunications in Canada*, Economic Council of Canada, Technical Rpt. No. 7, March 1981, p. 161.

170. BC Tel, *Memorandum of Evidence*, above, note 13, p. 10.

171. *Reforming Regulation*, above, note 145, p. 46.

172. *Telecommunications and Canada*, above, note 43, Recommendation 4, p. 78.

173. "The Emerging Agenda: Response by the Carriers", *Policy Issues in the Canadian-American Information Sector*, above, note 37, pp. 82-83.

174. Bell Canada *Memorandum of Evidence*, above, note 12, p. 6; BC Tel, *Memorandum of Evidence*, above, note 13, p. 9.

175. *CNCP Telecommunications: Interconnection with Bell Canada*, above, note 47, p. 240.

176. *Ibid.*, p. 245.

177. *Ibid.*, p. 257.

178. CNCP Telecommunications, *Application for Interchange of Traffic with Public Switched Telephone Networks*, Oct. 25, 1983, p. 5.

179. *Ibid.*

180. *Ibid.*, p. 6.

181. BC Tel, *Memorandum of Evidence*, above, note 13, p. 3. And see pp. 48, 74.

182. *Ibid.*, pp. 81-82.

183. NB Tel, *Memoranda of Evidence*, evidence of R.K. House, pp. 135-38.

184. Bell Canada, *Memorandum of Evidence*, above, note 12, p. 10.

185. *Ibid.*, p. 12.

186. BC Tel, *Memorandum of Evidence*, above, note 13, Appendix 2, p. 2.

187. NB Tel, *Memoranda of Evidence*, above, note 4, p. 13.

188. *Ibid.*

189. *Ibid.*, Appendix 1, p. 1.

190. Bell Canada, *Memorandum of Evidence*, above, note 12, pp. 38-39, BC Tel, *Memorandum of Evidence*, above, note 13, pp. 36-37.

191. BC Tel, *Memorandum of Evidence*, above, note 13, p. 36.

192. Bell Canada, *Memorandum of Evidence*, above, note 12, p. 40.

193. *Ibid.*, p. 40.

194. BC Tel, *Memorandum of Evidence*, above, note 13, pp. 36-37.

195. CNCP Telecommunications, *Telecommunications: A Core Component of Economic Growth*, Submission to the Royal Commission on the Economic Union and Development Prospects for Canada, Oct. 1983.

196. NB Tel *Memoranda of Evidence*, above, note 4, evidence of L.J. Celeste, p. 33.

197. Bell Canada, *Memorandum of Evidence*, above, note 12, pp. 18-19.

198. *Ibid.*, p. 53.

199. BC Tel, *Memorandum of Evidence*, above, note 13, p. 74.

200. *Ibid.*, pp. 18, 46.

201. Above, note 67.

202. *Ibid.*, pp. 56-57.

203. *Ibid.*, p. 57.

204. *Ibid.*, pp. 58-59.

205. *Ibid.*, p. 59.

206. *Ibid.*, p. 63.

207. *Ibid.*, p. 60, fn. 36.

208. *BC Tel Rate Case*, 1975 CTC, Telecom. Comm. File No. 32560.65.

This section draws on two valuable unpublished papers, Heather L. McDonald, "Unjust Discrimination, Economy Service and the Needy Telephone Subscriber", Aug. 1983, and Kathleen Martin, "Targeted Subsidies In A Competitive Telecommunications Environment An Examination of Alternatives And Their Implications", May 1984.

209. McDonald, "Unjust Discrimination . . .", above, note 208, p. 12.

210. For possible variations see section of this study on "Maintenance of Universal Service".

211. CRTC Telecom. Decision 78-7.

212. CRTC Telecom. Decision 79-23.

213. CRTC Telecom. Decision 81-15.

214. *Ibid.* Interestingly, as Martin, above, note 208 at p. 17, points out, Bell Canada has proposed, and the CRTC has accepted, an exemption of increases in directory assistance for senior citizens, the disabled and the functionally illiterate.

215. S. 15(2).

216. *The Public Utilities Review Commission Act,* Statutes of Saskatchewan, c. P-45.1 (1982).

217. S. 6(2)(c).

218. See John Hopley, "The Development of Life-Line Rates for Local Exchange Service: The Integration of Life-Line Principles with Income Targeting and Certification", 15th Annual Conf. Inst. Pub. Utilities, MSU, Williamsburg, Dec. 13, 1983.

219. *Universal Telephone Service Preservation Act* of 1983, above, note 61, p. 381.

220. See, for example, B. Weisbrod, "Collective Action and the Distribution of Income in the Analysis and Evaluation of Public Expenditure", in Haveman and Margolis (eds.), *Public Expenditure and Policy Analysis,* Chicago, Rand McNally, 1977.

221. *Residential Demand for Telephone Service 1983,* above, note 69, pp. 17-18.

222. Bell Canada, *Memorandum of Evidence,* above, note 12, p. 52.

223. *Ibid.*, p. 13.

224. See, *Local Telephone Pricing: Is There a Better Way?*, Richard Schultz and Peter Barnes (eds.), Montreal, CSIR, McGill University, 1984.

225. Bell Canada Corporate Public Relations, *What is LMS?* Aug. 1984, p. 8.

226. *Ibid.*, p. 3.

227. *Ibid.*, pp. 3-6.

228. Consider, for example, *Intervention on behalf of the Consumers' Association by H.N. Janisch and B. Graham, in the Matter of an Application of Maritime Telegraph and Telephone Company*, May 28, 1974.

229. See, particularly, Bell Canada, *Memorandum of Evidence*, above, note 12, pp. 18-19; BC Tel, *Memorandum of Evidence*, above, note 13, p. 10.

230. Leland L. Johnson, "Why Local Rates are Rising", Regulation, July/Aug. 1983, p. 31 at p. 51.

231. *Telecommunications in Transition*, above, note 85, p. 26.

232. *CRTC Annual Report 1982-83*, pp. ix-x.

233. Bill C-20, above, note 37.

234. DOC, Notice No. DGTN-001-84, "Telecommunications Policy Review", Canada Gazette Pt. I, Jan. 14, 1984, p. 281.

235. As noted in H.N. Janisch and Y. Kurisaki, "The Reform of Telecommunications Regulation in Japan and Canada: A Comparative Analysis", above, note 31.

236. House of Commons, Standing Committee on Transport, Ninth Report, *Domestic Air Carrier Policy*, 32nd Parl. 1st Sess., 1982.

237. *Telecommunications in Transition*, above, note 85, p. iii.

238. *Universal Telephone Service Preservation Act of 1983*, above, note 61, pp. 67-68.

239. See, for example, "Will your phone rates double?" *Consumer Reports*, March 1984, p. 154, "States Slow Telephone Changes", *Globe and Mail*, July 11, 1984, p. B3, col. 2 (New York Times Service), "Former Bell Operating Units Seek Big Rate Increases for Local Service", *Wall Street Journal*, Aug. 21, 1984, p. 29, col. 4.

240. See evidence of Alan Pearce in NB Tel, *Memoranda of Evidence*, above, note 4, pp. 72-78.

241. Statement of Drs. Robert D. Willig and Michael L. Katz, Attachment I, *Long Run Regulation of AT&T*, above, note 82, p. 33.

242. *The Economics of Competition in the Telecommunications Industry*, above, note 3, p. 217.

243. "The Road to More Intelligent Telephone Pricing", above, note 11, p. 155.

244. "Pricing Response to Increased Local Revenue Requirements", above, note 102, p. 506.

Comments on Janisch

Jim Brookes
Marketing Manager
British Columbia Telephone Company

We indeed live in very interesting times and are at a crossroads today in the telecommunications industry. Some very tough decisions lie ahead. We'll need the wisdom of that greek mathematician and philosopher, Pythagoras, who said: "Choose always the way that seems the best, however rough it may be; custom will soon render it easy and agreeable."

The challenges are many, as Professor Janisch illustrated in his articulate and well-researched paper. I'll comment on and add to some of his points, as well as give BC Tel's perspective on this important subject.

Let me begin by stating BC Tel's view on competition. The company is not opposed to fair and equal competition in the provision of interexchange services. In fact, such competition may have much to offer Canadians. However, it must be understood that the pricing structures for telecommunications services were designed, for a monopolistic environment, to achieve certain social goals: the most important being universal service. These pricing structures were not designed to accommodate competition. I am particularly speaking here of competition in the area of long distance and wide area telephone service.

Interexchange services have long been priced well above cost in order to permit a contribution to local services, which have been priced well below cost in order to foster the principle of universally affordable telephone service.

BC Tel is opposed to allowing competitive entry to a portion of the business that has been priced well above economic costs to achieve this goal, unless there is a program to bring rates more in line with costs. True competition cannot take place in the interexchange market without first resolving the need to adjust rates to reflect actual costs. To do otherwise would only cause telephone companies to lose revenues that currently are used to contribute to local service costs. This would not be fair to customers, who would face a painful period of market-forced rate adjustments.

Regulated competition, where all players are not afforded pricing flexibility or where some players are allowed fixed discounts for their services, will not provide the true benefits of competition. BC Tel feels the best way to achieve the benefits of competition is to introduce a program of rebalancing rates of all telecommunications services to bring prices more in line with costs before opening the door to interexchange competition.

Such a program would have to span a number of years to moderate the impact on certain sectors of society. Any decision to allow competition without such a prescribed program of rate rebalancing would only provide the illusion of competition. Most of the true benefits of such competition would be withheld from consumers.

Growing Pressure for Competition

One of the premises of Professor Janisch's paper, and one I agree with, is that the trend toward competition in the telecommunications industry is growing. This has already been evidenced by the successive pro-competition decisions for private line services, terminal equipment, radio common carriers and cellular radio.

Of some concern to BC Tel is that this trend has developed on an ad hoc basis, devoid of any clearly enunciated government policy. While I do not propose to recommend policy to government, one policy option available for Canada is to have a monopoly infrastructure that would provide an 'electronic highway' on which the enhanced uses of the network could be provided on a competitive basis. This approach is being used in some European countries. The trend toward increased competition in Canada is clearly illustrated by current applications before the CRTC to provide competing interexchange services at prices below those charged by BC Tel and Bell Canada. That's easy to do, given the large margins between costs and prices.

Such applications are surely influenced by these margins. Economics tells us that such large margins are bound to encourage competitive entry. As Alfred Kahn has aptly noted:

> . . . competition is the best mechanism for demonstrating which service is supporting which. All we have to do is look at the markets that competitors are invading, and the ones they are avoiding, in order to locate the inefficiencies of the previous pricing structures.

Events in Canada also appear to be inexorably influenced and affected by developments in the United States. Canadians have developed expectations of lower long distance rates from observing the scene south of the border. The downward pressure on long distance rates in the US – as a result of competition – has already spilled over into British Columbia in the form of cross-border resellers offering cheaper Canada-US rates. Not only will the US experience with competition teach firms how to compete in the telecommunications market, it will also teach customers how to take advantage of lower prices and could lead to an even more rapid market shift than occurred in the US.

Long Distance-Local Cross-Subsidy

Another premise of Professor Janisch is that a move toward greater competition cannot help but disrupt the substantial cross-subsidy between long distance and local service that has long existed in Canada.

BC Tel has previously demonstrated the size of this imbalance. The five-way split approach shows that toll clearly has substantial margins and local costs are substantially greater than local revenues. This approach attributes all access costs to local, a point of some controversy.

However, when we look at these same revenues and costs on a per line basis, but with access costs removed from local and left as a separate cost component, the conclusion is inescapably clear: local revenues do not cover local costs, and once again toll revenues exceed toll costs by a wide margin. The fact is that toll revenues are making the entire contribution to access costs. In a competitive environment, where interexchange carriers will try to avoid contribution payments, this is a totally unacceptable situation, especially since 19 out of every 20 calls are local.

The solution in a competitive environment surely is to have all services priced relative to cost. Such a scenario should probably involve pricing access as a unique service. BC Tel's belief that prices must approximate costs in a competitive environment is based, in part, on the belief that contribution methods are necessarily too inexact and cannot be maintained over time.

US Experience is Instructive

Another premise raised by Professor Janisch, which I also agree with, is that the opportunities and problems that have surfaced in the US will be similar to the ones that Canada will soon face. Clearly not every aspect of the two environments will or need be the same. However, just as the law of gravity knows no boundaries, the same can be said for the laws of economics and human enterprise when applied to an industry such as ours.

The pricing imbalance between local and toll that exists in Canada also exists in the US and in the latter, the entrepreneurial energy to enter this market, once competition received the green light, amounted to a stampede. The same necessity to rebalance rates exists in both countries. Bypass – (which I will expand on later) – has also been a pivotal issue in the US, and will be no less important in Canada, where our vulnerability is much greater. Political and regulatory issues are similarly very difficult in both countries, particularly regarding the need to increase local rates as long distance rates are driven down by competition.

One area in which I hope Canada differs from the US is in policy decision-making. Allowing competitive entry and then letting the market evolve without making the necessary adjustments to telephone pricing structures – while politically expedient – will not provide the true benefits of competition and would create customer confusion.

Long Distance Rates Should Approximate Costs

I am also in agreement with Professor Janisch when he says that in a competitive market, long distance rates should approximate costs. He correctly points out that if telephone companies had started to rebalance rates many years ago, the current imbalance problem would not be as severe as it is today. To be fair, it should be added that while we haven't had perfect prescience, both Bell Canada and BC Tel have at times attempted to increase local rates more than toll rates. We simply have not always been permitted to do so.

However, it is not reasonable to expect the contribution from long distance to local, or access – that exists today – can or should continue under competition. The incentive of interexchange carriers to avoid such a contribution is large, since current levels of contribution are far and away the largest portion of the average long distance revenue dollar.

In BC Tel's situation, the amount of contribution per dollar of long distance revenue is 64 cents on average, and as much as 78 cents on some routes. It is not unreasonable, therefore, to expect that an inter-exchange carrier would direct considerable energy and imagination toward avoiding this contribution.

I will not outline all the possible approaches, but one comes to mind as significant: it is sometimes contended that if a customer's connection to a competing interexchange carrier does not co-use the local switched network, then the resulting toll traffic ought not to pay contribution to local. If this argument is accepted, then it is possible for a very large portion of business toll traffic to connect to another carrier through telephone companies' local private line channels.

I should note that only 1 percent of our business customers account for 58 percent of our business interexchange revenues. At rates in the $30-50 per month range for local channels, it is clear that not much usage is required before the expense of a local channel is more than made up by the potential savings from contribution avoidance. This is just one of many methods of avoiding contribution but it serves to underline the necessity for long distance prices to approximate costs.

Bypass

Bypass – avoiding telephone company local facilities for communication – is not new, nor should it be expected to disappear in the future. The issue that should be of major importance to the telephone industry is the uneconomic bypass of telephone facilities caused by imbalances inherent in our pricing system.

There are three types of bypass. One is local bypass, where the communications are totally of a local nature, such as two branches of a firm communicating through non-telephone company facilities within a local area. This type of bypass is of limited concern prior to rate rebalancing, and even after rebalancing it would not be of major concern as long as price averaging is not extensive.

The second and third types of bypass are of much more concern. The second type involves bypassing the local network in order to connect to a competing interexchange carrier. Because this affords a way to avoid local contributions, there will be significant incentive to undertake this type of bypass.

The third type is total system bypass, where a large customer builds or leases capacity to construct their own network to bypass both local and long distance networks. This type of bypass requires a substantial investment on the subscriber's part, but presents a serious problem as the very large customers may be lost to the public network.

Some may question whether the bypass threat is real. I would refer you to a recent newspaper report where one of BC Tel's largest customers, MacMillan Bloedel, suggested they would have to look to bypass if they could not receive the same long distance benefits as their US counterparts.

One of the most damaging aspects of bypass is that once customers invest in bypass networks, they are lost to the shared public network for a very long time. This is of particular concern because of the high concentration of interexchange revenues among a small proportion of customers. The following comment from a US Federal Communications Commission official underlies the seriousness of the bypass threat

> Were we to delay instituting the smooth movement towards a rational pricing system until a sufficient number of large users had initiated constructing alternative bypass systems, it could well be too late for any remedial action. We believe that prompt action is essential to preserve the public interest. Now, it is likely that circumstances would quickly force such changes upon us. In such a case, we would be unable to afford the luxury of the gradual transition needed to satisfy our objective of maintaining affordable service.

The need to deal with the problem of bypass in Canada is exacerbated by the fact that in BC Tel, the contribution per minute of toll traffic is approximately triple the US rate.

Winners and Losers

Professor Janisch's conclusion that the majority of residential and business customers will pay more as a result of competition is correct. In BC Tel's view, the impact on subscribers could be lessened if rates are adjusted as part of a phased rebalancing program. As mentioned, this approach has the added benefit of providing all customers with savings from reduced long distance prices, as opposed to the restricted benefit that would result from competitors targetting high-use customers.

The majority of subscribers will pay more. The fact is that a small proportion of customers account for a large proportion of toll revenues. Ten percent of business customers account for 84 percent of business interexchange revenues; and 10 percent of residential customers account for 48 percent of residential interexchange revenues.

Competitors would obviously target residence and business customers with high levels of long distance usage, thereby causing the benefits of reduced long distance prices to flow to a small proportion of customers. This is illustrated in the US where carriers and resellers competing with AT&T have approximately nine percent of the market, but only serve approximately three percent of all subscribers. A rate rebalancing program would distribute the benefits to all users of long distance.

Some business sectors use a lot of long distance in relation to local. This suggests who the winners and losers might be. The communications, financial, mining, petroleum and even government sectors have relatively high levels of interexchange billing relative to local. Small businesses, health and food services, construction, retail and personal services have relatively low levels of interexchange billings relative to local.

Universal Service

Another premise raised by Professor Janisch is that a competitive interexchange market would both affect the long standing principle of universal service and raise the need for targetted subsidies.

In calling for rate rebalancing, I want to make it clear that BC Tel understands that a safety net must be designed to avoid customers dropping off the network. Certainly, BC Tel would be an active partner in both the design and implementation of a targetted subsidy plan. The involvement of government, our regulator and customer groups representing business and residential subscribers would also be critical.

The need for targetted subsidy plans, as opposed to non-targetted subsidies, is also important, as Professor Janisch's reference to ski chalets demonstrates. The US experience with competition shows that where a lifeline local service is introduced, the predominant users are not low income or elderly subscribers for whom the service is designed. Instead, more typical users tend to be relatively young, affluent professional working couples who spend little time at home.

This experience illustrates that targetted plans must be carefully designed to maximize the benefits of competition while ensuring that assistance goes to those who actually need it.

Conclusion

In conclusion, I want to reiterate the importance of the issues that are discussed in this volume. Changes are upon us in the telecommunications industry. They are changes that affect everyone who uses a telephone and who pays a telephone bill in this country. Much of the recent discussion on changes in the industry has been sparked by calls for more competition. BC Tel is not opposed to competition, as long as it is fair and equitable. But what must precede competition is a carefully planned rate rebalancing program to remove the imbalances in the current telephone pricing structures.

All of the above comments bring me to the following: competition itself should not be viewed as the goal. It should be examined as a possible means of achieving the goal of providing Canadians with the quality of telecommunications service to which they have become accustomed. This goal is possible; it will not be easy, but it is definitely attainable if we have the conviction of Pythagoras to choose the best way forward, however rough it may initially be.

Comments on Janisch

Peter S. Grant
Counsel to Canadian Business
Telecommunications Alliance

At the outset, I should make it clear that I act for a number of business user organizations who are currently appearing before the CRTC in the "IX" case. They include the newly-named Canadian Business Telecommunications Alliance as well as a number of other associations of large, small, and medium-size business users.

In the debate about interexchange competition, a group categorized as "large business" is usually singled out as the big winner. Low-income residential subscribers – and for that matter the cause of universality – are singled out as the big losers.

What I don't think has been adequately noted is the practical – as opposed to the merely theoretical – aspects of interexchange competition. In the last few years, business user groups have been learning – along with all of us – what telecommunications networking competition is all about and in particular what it means to business operations if telecommunications can be made cost-effective.

When you examine the practical implications of interexchange competition, you will reach the conclusion that if increased competition is not permitted in Canada – in other words, if the status quo is maintained – you will not simply have a situation of losers and winners. Rather, you will have a situation where everyone progressively becomes a loser.

You can only deal with this issue on the basis of practical real-life examples. And I would like to tell you about a particular industry that presents an illustration of the problem. I have purposely picked an industry that does not presently use telecommunications extensively – the Canadian book publishing industry. This is not a high tech industry. In many ways, some of the practices in that industry go back to the last century. One would not think that this would be an example of an industry affected by the interexchange competition case, but it is. The book publishing industry is made up of every possible size of firm. Some are very small – like Formac Publishing in Halifax. Some are very large – like McClelland and Stewart. But no matter how large they are, that doesn't mean that they don't have cash flow problems. And I suppose the best example is McClelland and Stewart, which is facing a cash crisis which requires all its collective efforts to improve its productivity.

Book publishing is like many other industries. It is an industry dominated by margins. It is an industry dominated by inventory costs, turn-over costs, ordering costs, and thousands of invoices, each of which is for relatively small numbers of titles. It is an industry of new titles, backlist titles, slow movers, fast movers.

Because of inventory costs and interest costs, book stores are no longer content with a turn-around on orders of four to eight weeks. Now they want a turn-around of 48 hours. And that brings us to the use of the telephone for the ordering of books.

This has become a crisis issue for the book publishing industry in Canada. Three weeks ago, in an oral presentation to the CRTC at one of its regional hearings on interexchange competition, a spokesman for the book industry made the following comments to the Commission:

> (We are now exploring) the ways and means of facilitating the tele-ordering of books in Canada, whether through the use of WATS lines or direct distance dialing or through the use of shared bulk facilities coupled with tele-ordering terminals. As we have begun to explore in this area, we have become very concerned with the massive advantage that our US counterparts have because of the open telecommunications market in the United States. Their rates, because of their ability to use bulk facilities, shared or re-sold, and the lower overall WATS and DDD rates, give them a massive benefit in productivity. One of our US competitors, as an example, is Ingram Books, a very well known American book

> wholesaler.... In a typical day in the US, Ingram's processes over 2,500 toll-free calls from book stores a day throughout the US and now increasingly in Canada. Ingram's telephone bill is $1.7 million (US) a year and that is the second highest cost after its payroll. Because of the lower and more cost-effective telecommunications in the United States, Ingram's is able to take and process a typical order at a much lower cost than we can do in Canada. There is no Canadian book wholesaler who can afford to use toll-free calls in this way, given the present costs.
>
> Our industry is just like any other. Everything is based on margins and these in the book industry are slim to begin with, and if our US counterparts can reduce a major element in their cost in this way, without Canadian rates also coming down, we face a real competitive disadvantage.
>
> A book store located in distant cities in Canada ... whether they are in Halifax, London, Regina, or Vancouver, will begin to place its orders for US books with the US source rather than going through a Canadian source and giving that Canadian agent the volume of business and the contribution to overheads that allows a viable Canadian publishing industry to exist. And that is a very important point. It is the revenue from these imported books which fuel the indigenous publishing of Canadian books to a very large extent.... (Comments of William Roberts, President, Canadian Telebook Agency, to CRTC, September 5, 1984, Hull, Quebec, Transcript, at pp. 95-96.)

In order to put these comments in perspective, I think it is useful to note that the current rate comparisons are between the United States and Canada. Let us take the example of a book store in Halifax wanting to order a book from a supplier in Toronto. Under the present Telecom Canada message toll schedule, a five-minute daytime customer-dialed call between Halifax and Toronto – a distance of 784 miles – will cost $4.80.

You can obtain the equivalent rates in the United States by examining the tariffs filed with the FCC. I have looked at the tariffs currently in force for the principal interexchange competitors in the United States. If you take their rates for exactly the same distance, and convert them into Canadian dollars, you will discover that AT&T Communications would charge $2.87 for that 5-minute daytime customer-dialed call.

MCI would charge $2.46; GTE Sprint would charge $2.71 and Satellite Business Systems (SBS) would charge $2.56. For other comparisons, see Table 1.

Now, before going further, we need to think about what can be achieved in a 5-minute call. This is a bookstore calling a book publisher. The questions that can be asked are "do you have this book in stock?" "Can I have five copies of this book?" "What happened to my order?"

These are the most crucial kinds of calls, because they produce real orders in real time. Given the present Canadian rate levels, there are virtually no Canadian book publishers that have instituted toll-free lines. You can contrast the cost of a 5-minute call to place such an order with a similar call being borne by a US trade wholesaler such as Ingram's. As the spokesman for the book industry stated to the Commission three weeks ago:

> We must get lower and more cost effective long distance rates in Canada. I am sure that there are many other Canadian industries involved in tele-ordering or who wish to be involved in tele-ordering that will have the same problems. I am afraid that some of them will not be sufficiently aware of the imbalance with US rates until it is too late and the jobs flow south as well as the orders.

That is the problem. We are not just talking about competition and productivity. We are talking about the difference between declining and surviving industries. If we do not bring long distance rates down, Canadian industry and the Canadian public will all be the losers. The Ingram's of this world will take the orders. The McClelland and Stewarts will go under. And very few people will know precisely why. On the tombstone of those now demised companies will read the phrase, "they went under because of the margins".

Now I picked publishing, because this is not an industry which uses telecommunications a lot. It does not appear in BC Tel's list of high users of long distance and therefore among the apparent "winners" in the lexicon of "winners and losers". But we are not just talking about one industry. Some industries have long realized the importance of telecommunications as a building block to economic growth and activity. Others are only beginning to realize it. If they do not, they will shortly realize it. But whether it is data processing, financial transfers, or firms involved in ordering a distribution of a regional or national market, we are talking about the whole panopoly of Canadian industry.

Table 1
Comparative Long Distance Rates for Selected Mileages in Canada and the United States

(5-Minute Daytime Customer-Dialed Call)
(Rates as of July 24, 1984)

		Applicable Canadian Telco Rate	What US Carriers Would Charge for the Same Distance (converted to Canadian $)			
			AT&T	MCI	Sprint	SBS
1.	Hamilton-Toronto (38 miles)	$1.91	$1.96	$1.78	$1.84	$1.65
2.	Montreal-Ottawa (104 miles)	2.91	2.55	2.16	2.35	1.65
3.	Toronto-Kingston (149 miles)	3.01	2.66	2.25	2.46	1.65
4.	Toronto-Montreal (313 miles)	3.27	2.77	2.39	2.58	2.56
5.	Vancouver-Edmonton (515 miles)	4.25	2.87	2.46	2.71	2.56
6.	Toronto-Halifax (784 miles)	4.80	2.87	2.46	2.71	2.56
7.	Montreal-Winnipeg (1138 miles)	5.00	2.95	2.52	2.76	2.56
8.	Toronto-Vancouver (2094 miles)	5.50	3.33	2.84	3.14	2.56

What can be taken from all of this? In my judgment, the two crucial points that seem to me to have been underplayed in the debate so far in this conference are as follows:

First, the long distance rate structure is creating a crisis for business which will only increase further because of further technological developments in tele-ordering and inventory control.

Second – and this is a much more positive point – after having had discussions with numerous business users of all kinds, I am convinced that there is a pent-up business usage out there waiting for cost-effective rate solutions. We are, in my judgment, on the threshold of an enormous increase in long distance networking. It will only occur if it is stimulated by competition and by cost effective rates. But it must occur if our industry is to maintain its ability to survive.

Now before concluding, I should direct a few comments on the question of rate rebalancing. Obviously, this has been dealt with in some depth in the interexchange proceeding before the CRTC. All I can say at this stage is that we have to look very hard – and, I should say, with a grain of salt – at any proposed changes. In particular, you have to distinguish between those who talk about "universality" and those who are really talking about maintaining, as Hudson Janisch has quoted, "the inequity of mindless, unfocused subsidizations". In examining the telephone company data on rate rebalancing, you should realize that old fallacies never die – they simply get new names. It is in the interest of the telephone companies to exaggerate a number of points. And there are a number of criticisms that in my judgment can properly be addressed to their rate rebalancing proposals.

First, it is in their interest to understate substantially the increase in demand that will come with long distance rate reductions.

Second, it is in their interest to understate significantly the market share advantage that the telephone companies will continue to have by virtue of being the dominant carrier in each market.

Third, it is in their interest to overplay the usage component in local rates, to support the introduction of local measured service, notwithstanding the substantial non-traffic sensitive component of access costs.

Fourth, and finally – and this point is particularly interesting given the comparisons with the United States – it is in the interest of the telcos to understate advantages of being an integrated carrier, able to offer both local and long distance service to a customer. This phenomenon no longer applies in the post-divestment environment in the US but will continue to apply in Canada. It constitutes a major distinction between the Canadian and the US telecommunications environment. It is a distinction which will give the telcos in Canada a massive continuing advantage because of their built-in customer base, their control of local dial tone, and their cost efficiencies, which will not be the case in the US.

Obviously, these proposals and criticisms will be tested in the interexchange proceeding. I don't disagree with Hudson Janisch that the real agenda of that proceeding is to try and make everyone a winner. All I can say is that it is clear that a preservation of the status quo will make everyone a loser.

Comments on Janisch

K. J. MacDonald
General Counsel and
Director of Regulated Industries Program
Consumers' Association of Canada

I would like to start by commending Professor Janisch for his considerable efforts in compiling so much current information in such a rapidly changing field and presenting it in his own inimicable, yet understandable, style. As a commentator, I would have been happier had he been able to condense this information even further, but I certainly understand the difficulties in doing so, given the complexity of this subject.

Winners/Losers

The basic problem which is outlined in Janisch's paper is that the changes which are occurring and are forecast to occur in the field of telecommunications are going to make winners and losers of different groups of subscribers. The winners – big users of long distance. The losers – those who make very little use of long distance.

If the rate rebalancing proposal advanced by Bell Canada is accepted, 17 out of every 20 residential subscribers will pay more for phone service. A majority of households will see their phone bill more than double. A Bell Canada estimate reported in *Maclean's* suggested that 200,000 subscribers could be forced off the system. About half a million people in Ontario and Quebec will be denied access to an essential service. Fifty-eight percent of business subscribers will have higher bills.

Economists tell us that those people will benefit indirectly as the nation's productivity improves. As one of my CAC colleagues noted in a recent meeting – under the trickle down theory it doesn't get very wet at the bottom.

Underlying Premises

There are two basic premises underlying Janisch's paper. One, that more competition is inevitable and the real policy question is not *if* but rather in what form and how quickly. I agree.

The second premise is more difficult. That there are cross-subsidies in the present system is unassailable and not particularly surprising given that the pricing system is based on principles such as value of service and company wide averaging. The difficult question is which service is providing the subsidy and which is being subsidized. Ten years ago Bell Canada told us it was impossible to cost individual services because of the nature of the system – many services using common facilities. It was also stated to be beyond sound administration.[1]

But the telephone companies have solved their basic problems in this competitive environment – they have developed costing systems which allocate all of the non-traffic sensitive loop costs – or the access costs – to monopoly local service. The Inquiry Officer of the CRTC did not accept this approach – the telephone companies did not challenge his finding – yet they continue to allocate all access costs to local in the rate rebalancing.

I don't doubt that there is some subsidy of local service. I've seen the BC Tel numbers given in Montreal which indicate that local does not quite cover all of its traffic sensitive costs. But I believe the telephone company numbers which suggest a massive subsidy are out of line.

American Experience

Professor Janisch relies heavily on American experience to make his points. He has done a fine job in supporting his thesis that this experience is relevant in Canada but I believe he has understated the significance of the differences related to the structure of our Canadian industry.

For example, an analysis of the numbers presented by Woodrow and Woodside indicate that local rates on the Prairies are lower than elsewhere in Canada. Is there extra pressure on these provincial Crown corporations to keep local rates low – particularly in rural areas? Will that affect their outlook on competition?

Janisch makes the point that the vast bulk of services are provided by investor owned companies. Forgetting for the moment the government owned telephone companies, is he suggesting that all investor owned utilities will approach competition in the same way? A glance at existing positions will dispel that myth. NB Tel is engaged in a "knock 'em down drag 'em out" battle against all forms of competition including terminal attachment while next door MT&T has applied to its regulator for permission to allow customer-owned equipment to be attached.

Lest we get carried away with the idea that the telephone company in Ontario is in the vanguard of the move to competition and cost based pricing, I understand that it has been enlarging its extended area service zones in recent years and plans to do so in the future. Bell Canada is busy promoting LMS as the way of the future while the President of Newfoundland Tel told the LMS Seminar in Montreal in May 1984 that he would do everything he could to prevent its introduction.

Given these different interests and approaches what effect will changes such as Bell's proposed rebalance have on Telecom Canada? This is an organization whose RSP is based on the "Bedrock principal of uniform rates between carriers".[2] Will one company obtain the required unanimous approval to rebalance? Will the government owned Prairie telephone companies, who appear to be more reliant on long distance revenue not resist such a move? Their discussion will certainly be interesting.

Professor Janisch discounts the ability of regulators or legislatures to control or limit competition. I believe he has underestimated the power and political will of our elected and appointed officials in these areas. By refusing to permit the interconnection of competitors such as CNCP, the CRTC and provincial regulators will be able to limit the amount of revenues which will be siphoned off from the regulated telephone companies. This action may prove very attractive to them.

The question which then arises is whether, without rate rebalancing, the telephone companies would still lose significant amounts of revenue because of that second form of competition, bypass. In particular, Professor Janisch and others are concerned about the prospect of uneconomic bypass occurring due to the inefficient pricing of telephone company services. CAC sees this threat and is alarmed by its potential effects on the telephone companies and their subscribers, our members. But the telephone companies are requesting consumers and regulators to accept on faith, and faith alone, that bypass is a significant threat. Bell wants to triple or even quadruple local rates on the basis of this threat. Anecdotal evidence or stylized facts are not enough. Consumers and regulators must be presented with sufficient real evidence on bypass to reach a conclusion on the seriousness of the threat and the steps appropriate to prevent its occurrence or at least confine it to acceptable levels.

Is the US experience with bypass applicable to Canada? I have not seen any analysis of the markets, usage patterns, etc. comparing the two. How does the penetration of private line services in Canada and the US compare? Will private lines, which are a form of bypass, be sufficient to meet the threat?

Why are companies bypassing? A recent article in *Telephony* mentioned cost as only one of the reasons–and not always the most important one.

Are there ways in which the telephone companies, by improving service can prevent bypass? Is there a level of bypass which cannot be prevented regardless of the cost? Let's have the data.

Universal Service

Professor Janisch has characterized universal service as the telephone industry's greatest achievement. If his crystal ball is accurate, then undoubtedly the regulators greatest challenge will be in maintaining universal service in the new environment.

The paper suggests that we look to local measured service as a means of maintaining universal service. Certainly, this is the argument that Bell Canada and BC Tel have been putting forward with respect to LMS up to this date. Obviously, if telephone rates are going to rise by two and a half to three times LMS by itself is not going to be sufficient to maintain universal service. The access charge alone in an LMS system in this rebalanced environment would be about 80 percent higher than the existing flat rate. Of course usage charges would be added on top of that to make the total local phone bill.

Professor Janisch acknowledges this and proposes that a cross-subsidy be built into an LMS system to lessen the effects on low income subscribers. Basically, the proposal would be to recover certain of the fixed access charges out of the usage component in an LMS system thus lowering the total cost for access. There is one obvious problem with this. If you recall the quote in Professor Janisch's paper from the article in *Fortune* magazine, April 1984, the type of bypass referred to in the first paragraph was bypass of the local network. Westinghouse spent $26 million to construct a system that will save $66 million in local phone charges over 10 years, providing a robust 28 percent return on investment. A rebalancing of rates so as to dramatically raise local service prices followed by a shift to a local measures service system which incorporates some non-traffic sensitive costs in the usage charge is going to encourage more of this uneconomic local bypass and result in a loss of revenue to the telephone company.

But there is a more fundamental problem with LMS. Neither Bell Canada nor BC Tel, the main proponents of LMS in Canada at this time, have produced any evidence which suggest that LMS will be a more efficient way to price local phone service in this country. What are the costs of measuring? What are the additional administrative and billing costs? What affect would a move to LMS have on the demand for new lines or on existing patterns of use and total usage volumes? If the efficiency of LMS depends upon usage suppression, what type of usage would be suppressed and what are the social costs associated with that suppression?

Proponents of LMS frequently refer to US studies which indicate that LMS is more efficient. I could equally cite some US studies which point in the other direction. But more importantly, we have some recent statements by the telephone companies themselves which cause concern. In CRTC Decision 77-5, the Commission directed BC Tel to study the feasibility of introducing a low priced telephone service with rates based on usage. The company introduced some evidence and the Commission made the following comment in its decision 81-2 issued on January 29, 1981:

> However, the Commission notes the company's evidence that it could not, except at a *significantly increased cost*, provide a measured option on more than 10 percent of the lines in its electronic offices. (Emphasis added)

In a document Bell Canada filed with the CRTC late in 1979, which CAC obtained under an Access to Information Act request, the company listed four problems with LMS. The first two problems were:

(1) significant cost of measuring and billing local calls,
(2) additional administrative costs, e.g., customer inquiries, accounting.

Suddenly, in a more competitive environment, these very "significant" costs are not as significant. What has changed?

Professor Janisch suggests involving politicians. I agree. The sooner they start to grapple with these issues the better. But although these politicians have paid lip service to the promotion of competition they also recognize that the majority of voters will be losers. When Francis Fox made the statement that Professor Janisch quotes in support of competition he went on to say: "It will be necessary to ensure that the public's right to basic telephone service at reasonable rates is not eroded in this process."[3]

Professor Janisch concludes by offering three modest pieces of advice to the regulators. My advice to the regulators would be to be particularly tough with telephone companies who suggest enormous rate hikes to prevent possible occurrences. Demand the production and public dissemination of detailed information on these areas of concern.

Talking to consumers about mindless unfocussed subsidies is not enough, especially when those subsidies are responsible for what Professor Janisch calls the greatest achievement of the system – universal service.

Notes

1. Exhibit B-71-296 filed with CTC, dated March 21, 1972, page 6.
2. Comments by Counsel for BC Tel during final argument before the CRTC in Phase III of the Cost Inquiry – September 1984.
3. Notes for a statement by Francis Fox, Minister of Communications, to the House of Commons Standing Committee on Communications and Culture, DOC Information Services, May 26, 1983, page 6.

Telecommunications Policy: An Industry Perspective

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The papers certainly have covered the main issues surrounding the industry today. Many options were also discussed; however, I noted that most options were qualified by "unknowns", "it can't be done", or "further study is required". The options are so difficult to qualify because of what I call the "dilemma circle". This "dilemma circle" starts with the objective of universal service spurred by value of service pricing and system wide pricing averaging. This, in turn, leads to cross-subsidies. These cross-subsidies, along with the new technology, create targets for not only competitors but large user bypass. This reduced the ability to cross subsidize and causes the industry to look at rate rebalancing. This brings up the need for local rates to rise and brings us back to the top of the circle at the impact on universal service.

The industry today certainly doesn't have to apologize for the situation it finds itself in concerning cross-subsidization and pricing policies. This existing rate structure has evolved to support the goal of universal service based on the principle of value-of-service pricing which has reflected the goals of the telco, its regulators and generally by the subscribers to telecommunication services. This rating structure, together with the rapid technological innovation has resulted in the potential of uneconomic bypass of the telecommunications sytem. As stated by Professors Woodrow and Woodside, "the potential for bypass in the long-haul transmission arena, then is substantial, precisely because it is believed that there has been significant cross-subsidization from long-distance to local service."

The phenomena of bypass has become quite common in the US. As well, an example of bypass in British Columbia was described by Dr. Globerman who concludes, "this example supports the contention of a growing number of telco executives that rate rebalancing efforts in the US will put increasing pressure on Canadian common carriers to move in the same direction." This same problem does not exist in eastern Canada as we foresaw the problem and made the appropriate adjustments between long and short haul rates.

The potential for uneconomic bypass then necessitates the requirement of some degree of rate rebalancing. The twin pressures of bypass and increased levels of competition will greatly accelerate the pace of rebalancing. It is not surprising, that some Canadian telcos have stated publicly that rate rebalancing is a necessity, however, the unanswered question is how far it must go and how quickly it should occur.

Without increasing the current level of competition, rate rebalancing can occur on a gradual basis without a major dislocation of local rates. This strategy incorporates selective toll discounts intended to stimulate the market, thus lessening the impact on local rates. While I cannot agree that competition is necessary in the message toll area, I do, however, agree that in the event of competition, that rate rebalancing must occur first. If competitors are allowed in the market before rate rebalancing, it may become uneconomic entry. This promotes hit and run competition, bankruptcies, etc.

One of the major issues facing the smaller telcos of Telecom Canada is a possible unilateral decision by the CRTC to allow competition in Bell Canada territory and BC. Any increased competition in the long distance market will have a large impact on Telecom Canada which, until now, has been a stabilizing and unifying force in the telecommunications industry in Canada. At stake is not only significant toll revenues, but also the maintenance of an integrated national system. Harm could be done to the Telecom Canada negotiation process if different members take unilateral action that best suits their priorities and those of their regulators.

The introduction of competition will leave less revenue available for settlement on a Telecom Canada basis. The exact impact on individual members is difficult to quantify, but it is probable that the introduction of toll competition will force a re-negotiation of the settlement process in an atmosphere of self-interest. That is a condition not likely to foster solutions consistent with the national interest.

This brings us to the role of government in policy direction. Legislators must accept their responsibility for developing policies and formalizing them in legislation. They must eliminate regulatory overlap, recognize that there is a cost in regulation and ensure ease of administration. As Professor Janisch points out, "the most urgent need at this stage is to involve parliament". Regulators, in turn, must interpret and carry out government policy. They must streamline their procedures and apply the rules evenly for all.

In areas where two or more companies compete in providing a particular service, if the participation of one of them is regulated, then the participation of the others should be similarly regulated, or all the activity should be deregulated. Equity of treatment must be the goal.

I believe that the current studies underway will provide vital information that can be used by governments, telephone companies and regulators in developing public policy to ensure that a proper balance will be drawn between the social and economic telecommunications objectives of Canada.

A major concern expressed in the papers is the structure that should be implemented to ensure that the telephone companies do not use revenues from their monopoly operations to subsidize competitive activities. The option of forming a separate subsidiary, from my point of view, is simply not feasible, because of several reasons:

- small market-size in many areas of Canada;
- cost inefficiencies caused by the separation;
- difficulty in fairly transferring the installed equipment assets to the subsidiary;
- the convergence of technologies (i.e., voice/data integration), central office provided features and services, and the overall integrated services digital network (ISDN) would require cost separation which is virtually impossible.

It is my opinion that a solution must be found which allows the telcos to operate in as unhindered fashion as possible in the competitive areas. The smaller telcos could be competing against companies which are larger and national in scope and therefore must be free to compete on an equal footing.

I don't want to leave anyone with the impression that the existing arrangements vis-a-vis competition should be left as is because it's the right thing for our industry. Very much to the contrary – things have gone too far to maintain the status quo.

There is a tide in motion now that will change the industry – for better or worse, will be a raging debate for the future generations. They will study and re-study it in much the same way as the existing generation is studying whether or not the change should take place.

Until now, all of the parties involved have been very cooperative and conciliatory – information has flowed freely – discussion has taken place in a friendly atmosphere – all the issues have been explored – comparisons made and speculation ensued. So far its been a game. The gloves are about to come off. Implementation of a competitive thrust in communications in Canada will not be easy – for three important reasons:

- The economics in Canada are marginal: It can't be compared to the US. If one were to look at the rate of return of Canadian telco's over the last 20 years, one would find that none of them, compared with other Canadian corporations, were leaders – they certainly weren't at the bottom – but equally, their return was much less than what many companies would have set as a minimum return for new investment opportunities. The 1983-84 recession has made some telco's look attractive – but coming out of the recession our returns will again fall behind many others of our size. My point here is that there aren't a whole lot of "profits" to be redistributed to competitors and or back to consumers. That was not the case in the US. The potential savings in communications costs to about 100 large corporations in the US would represent a substantial portion, if not all, of total profits in the Canadian industry. Equally in the US there is a major battle, with massive economic stakes at risk, with respect to the communication and information processing industry. The stakes aren't as great in Canada because of the impact the US industry has in developing patterns in Canada.
- The second major problem in Canada is politics. The industry in Canada is essentially comprised of ten fiefdoms. There is no recognized central control and there is going to have to be some significant changes in law – at the federal and all the provincial levels. Regulators can only regulate within the framework of specific legislation.

  I would speculate that any attempt to introduce competition throughout the industry by regulation at the federal level will touch off a round of federal-provincial debate that would make the debates on the "constitution repatriation" seem insignificant.

- The third area of difficulty will be in the Industry itself. We are proud of our accomplishments. We are not in violation of any antitrust or combines laws. We are not plea bargaining nor are we trying to find an entry into new businesses with ready-made potential. Others want into our business. We are willing to let them in – given that the cost to us is not too great. There is an extremely functional communications network out there – functional and valuable – the rules will have to recognize that value and who put it there. If it is going to be used by others to make money – they will have to pay the fare.

Having outlined what I believe to be the major difficulties, I return to my original premise that if competition is to occur – let's get on with rate rebalancing – at least then we'll know where the real targets are – then lets deregulate – but deregulate all the players. This will take time – in the meantime the industry has to recognize that some easing of interconnection rules may be appropriate and timely.

Telecommunications Policy: An Industry Perspective

Dennis Wardrop
Director of Corporate Development
Manitoba Telephone System

Introduction

It is evident that the current issues in telecommunications are complex and difficult. They're not easy to understand, even for those who are well acquainted with the nature, structure and operation of the many facets of the industry.

Professors Globerman, Janisch, Woodside and Woodrow have done a truly excellent job not only in identifying the principal features and facets of the issues, but also in describing them in a manner that makes them understandable and accessible to the layman. That's quite an accomplishment which deserves our admiration and gratitude.

That high praise, however, doesn't mean that I found the reports to be flawless. Indeed, if I hadn't found some gaps and problems, I would have stayed in Winnipeg.

Missing Elements

I was somewhat disappointed in a number of missing elements in the studies. One of these gaps concerns differences between the Canadian and US Telecommunications environments. This point was noted and addressed, but some key items, I feel, should be explored in greater depth.

One of these items relates to the difference between the US and Canada in the way their respective overseas traffics are handled.

Teleglobe Canada, which is a wholly-owned, federal Crown corporation, and is not regulated, has a healthy financial standing. With assets in excess of $450 million, it earns more than $55 million annually in net income on gross income of about $200 million, and its return on invested capital for a number of years has been in or around the 20 percent mark.

Teleglobe is something of an anomaly in international telecommunications. It's an intermediary that simply doesn't exist in other countries. This anomaly doesn't allow for a maximum degree of integration and efficiency in facility planning and provisioning. Moreover, the substantial revenues earned by Teleglobe are not used to support and maintain the cost of the domestic telecommunications system upon which overseas calling depends.

I think that given the prominent concern expressed by the researchers about economic efficiency, the Teleglobe situation, taken in an international context, requires some careful examination and analysis. The question, I suggest, is whether Teleglobe represents the most efficient means by which to provide overseas service, and whether it makes a clear contribution to Canada's telecommunications objectives.

Based on their findings in answer to this question, I would invite the authors, in their further research, to measure the degree to which the Teleglobe situation impacts the industry in Canada, and what adjustments might be proposed.

There is another difference between Canada and the US that I feel didn't receive the attention it deserves. In the US, the rural electrification administration has partially supported the cost of extending telephone service in rural areas. As the researchers examined the differences and similarities between the two countries, I didn't find any attempt to account for this factor. Some of the questions they might wish to examine are: How much has the REA contributed to the support of rural telephone costs? What impact has this had on telephone costs and prices in the US? If similar provisions had been in place in Canada, what would have been the impact on costs and prices here?

In reading the studies, although passing reference was made to the point in one of the papers, I felt that too little attention was given to the difference in the market structures in the two countries. Indeed, it was suggested that those who have concerns about increased competition in Canada note that our national market is considerably smaller than that of the US. However, I found no compelling response to that observation. How many times in other industries have we followed the US example, only to find that our markets are too small and too different to warrant US style competition?

Nor did I find in the papers any in-depth analysis of how the new industry structure in the US differs from the Canadian situation.

When AT&T was divested, the breakup carefully took into account the need to spin-off Bell operating companies (BOCs) that would have the weight, size and market-reach capable of allowing them to survive. In fact, each and every one of the seven new regional holding companies are among the largest firms in the US, and they each have serving areas that incorporate significant markets. Here are the figures:

Pacific Telesis:	11 million access lines 82,000 employees Revenues: $8 billion (1984) Assets: $16 billion (1984)
US West:	11 million access lines 75,000 employees Revenues: $7 billion (1984) Assets: $15 billion (1984)
Bell South:	14 million access lines 99,000 employees Revenues: $10 billion (1984) Assets: $21 billion (1984)
Southwestern Bell:	10 million access lines 75,000 employees Revenues: $8 billion (1984) Assets: $16 billion (1984)
Bell Atlantic:	14 million access lines 80,000 employees Revenues: $8 billion (1984) Assets: $16 billion (1984)
Nynex:	13 million access lines 98,000 employees Revenues: $10 billion (1984) Assets: $17 billion (1984)
Ameritech:	14 million access lines 79,000 employees Revenues: $8 billion (1984) Assets: $16 billion (1984)

These figures should tell us something about significant differences between the US and Canada. These regional companies are huge. There is no comparable company in Canada, not even Bell Canada. Bell Canada Enterprises (BCE), its parent company, including a whole array of companies including its pipeline and publishing operations, generated only $9 billion (in Canadian dollars) in 1983, on assets of $15 billion. BCE's telecommunications operations generated just a shade over $5 billion in revenues, on assets of $10.5 billion. That means Bell Canada plus BCE's other Telecom subsidiaries.

Perhaps not in economic theory, but certainly in business practice, the size and weight of a company, as well as the markets it serves, can make all the difference in the world. That's a difference that these studies do not address. Indeed, I've never seen a proper business analysis of the differences between the US and Canadian telecommunications industries, and it might just be what is missing in our equation. Companies like Manitoba Telephone System (MTS) are especially interested in what companies might survive or fail. Do we know what factors in terms of corporate size and market-reach are involved in survivability? Would the US have done what it has done if AT&T were, in total before divestiture, smaller than the smallest BOC after divestiture?

If we're trying to propose something for the future, have we really understood what the business, as opposed to the "economic" conditions will be facing the players? In the US, it's clearly a question of big guys fighting it out with other big guys on a large playing field. The studies before us simply haven't, in my view, looked closely enough at the players – as businesses – and the field – as a business environment.

Regional Development

One or two of the researchers made reference to regional variations in Canada, and the importance of telecommunications in regional development. But, I had the impression that this was very much a side issue for them. Naturally, as a representative of a telephone company on the prairies, wholly-owned by a provincial government, regional differences are a central issue for me.

I'm not sure that the authors appreciate that there are vital differences between a company of the size, orientation and ownership of Bell Canada and a company like MTS. It is not so much that we operate differently – indeed, day-to-day operations of most North American telephone companies are pretty much the same – but we face very different expectations from our shareholders and the people who represent their interests, the elected officials of the provincial government. These are important factors in understanding how Prairie telephone companies can react and adjust to a changing environment. Although Professors Woodrow and Woodside touched on these problems, I think they require an analysis of considerably greater depth.

Price/Demand

At the risk of walking where only economists dare to tread, I felt that too little attention was given in the papers to the question of traditional value of service pricing in our industry and its impact on demand.

From the outset of the industry, it was a simple, common sense notion. As the number of people on the network grew, its value to each subscriber grew as well. Taken in the aggregate, this process suggested that positive benefits to the society as a whole would follow if everyone were to come on the network – indeed, universal accessibility continues to be seen as a desirable goal, even by those who are the strongest advocates of major structural changes.

The researchers all, in one way or another, have addressed the problem of universal service; none seems overly concerned. Each appears to feel that targetted subsidies or some other such technique will guarantee universality. These solutions don't seem to be entirely satisfactory to the authors, nor do they bring me much comfort. It would appear that they will face political opposition, and if ever implemented, will be difficult to administer.

More importantly, there may be reason to believe that local telephone service could be more price sensitive than has been suggested.

One author, Dr. William B. Stanely, writing in the July 5, 1984 issue of *Public Utilities Fortnightly*, has asserted that "increases in the price of basic service present an obvious threat to the goal of universal service . . . economic efficiency requires rates for basic service to be set lower than marginal cost. Furthermore . . . even small increases in the rate for basic service above some maximal level could lead to an unstable situation where so many households leave the system that the viability of the system could be destroyed".

I'm not an economist, but if I understand his point, pricing above this maximal level, even if below the marginal cost of local service, could start a snowball effect, reversing the value of service spiral. With fewer people on the network, people on it might find it to have less value and leave in droves. This, too, is an area, I think that should be given a closer look.

This examination may be all the more important in the wake of Bell Canada's recent rate rebalancing proposal. Its suggested five-year plan would see residential rates, depending on rate groups, rise from between 200 percent to 300 percent. I know that many in this audience will be quick to note that there is considerable disagreement as to how Telcos cost their services and whether all factors have been taken into account in the Bell plan. But, I ask you, what if Bell is right? We have yet to see the 5-year outcome of the US situation? And what if Dr. Stanely is right? If we move too quickly to the edge of the precipice and they are, we'll all be the sorrier for the result.

How Universal Is Universal Service Anyway?

We all speak about universal service as if its a *fait accompli*. In fact, my own company prides itself on having achieved what it calls "virtual" universality. But there's still a job to be done. We haven't reached all the people in our province – and the level of service where it is available can and should be upgraded to meet new telecommunications opportunities. This, as this audience is well aware, is one of our main bones of contention about the financial implications of competition.

To continue with the job of extending service to places that are more difficult to serve takes a lot of money. If we're deprived of expanding sources of revenues, what we have done, are doing and, most important, would have done, could be in jeopardy. Not only do we intend to put basic service in the reach of everyone, we want to begin the process of making 1R service available throughout the province, and then the facilities that will allow data and even slowscan video to be sent into smaller communities. These are not the things that our competitors will want to do – we see them as part of our responsibility.

Our trials with Telidon Videotex Services in our grassroots project throughout rural Manitoba has given us strong signals of the essential nature of this information flow for the future survival of Canadian agriculture as a continuing dynamic force in an ever increasingly competitive world. To provide such services, one party service is essential. If we as a national fail to keep our agri-industry efficient, each and every Canadian will feel the effects of the declining world trade generated by this segment of the economy.

Winners and Losers

I was troubled by the authors' tendency to deal with "average" effects across Canada. This kind of perspective doesn't give us a good picture of how things might look. If "average" impacts mean that, in fact, manufacturing interests in eastern Canada win and agricultural interests in western Canada lose, my question is, "Where's the Beef?" Who's going to produce it?

In only a half facetious way, I'm saying the researchers have not shown us precisely where and how the benefits and liabilities will fall. It seems that too much dependence has been given to econometric and statistical analysis, and too little on input-output studies.

Listen to what Nobel Price winning economist Wassily Leontief observed in a recent interviews. Commenting on the reliability of econometric models, he said:

> Just taking a coin and flipping it would give you about as good a forecast as taking the average of all the econometric models. If you have twenty models and all of them forecast different things, of course one of them will be right. The more thoughful of these forecasters would agree with me. Larry Klein (or Wharton Econometric Associates) might agree with me saying that typical econometric forecasts are terribly weak, really just extrapolation. You look at the past and you get the future!

Pointing to the advantages of input-output over statistical analysis, he says:

> . . . in economics, as in biology, you may have two hundred or even two thousand variables and dealing with them I reject the statistical approach. I say each variable is significant. You cannot substitute one for another. With input-output analysis, I construct a big system using many variables, but each one has its own name and address.

I don't intend to get into an academic debate here, but clearly all the variables have not been examined, their inter-relationships measured and studied. These things haven't been done, and yet the stakes are so high. Should we be forging ahead without having a much better accounting of all the variables and how they interact?

I also had problems with a suggestion made in one of the papers that lower costs to large businesses will somehow be passed on to all Canadians in lower prices and taxes.

I'm not just a little suspicious about all this trickling. How much trickling will there be? And to whom will it flow? When the senior citizen in Winnipeg calls me to ask how she benefits by having to pay a substantial increase in her local telephone bill, what do I tell her? Do I assure her that she's going to save $10 on her next computer mainframe?

My point is that much has been asked of us carriers in providing hard data on the impact of competition on our business, but it seems that little in the way of meaningful and hard data has been coming from those who say things will be better if we begin to open up the business. Frankly, I've always felt that those who advocate changing something that works should bear the onus of proof – and I'm not alone in the industry as one who's getting a little annoyed about this curious reversal.

Implementation

Without being the least bit impolite, I must be blunt. Based on what I've read, there are simply too many questions left unanswered to begin to talk about options, let alone implementation.

We don't know how these changes in our industry are going to effect other industries, how they are going to effect our economy as a whole. We don't know how increased competition in telecommunications is going to impact on regional development in this country. We don't have a firm handle on the price/demand question and its effect on universal service. We don't have a business perspective on how markets and firms might operate. We don't know if we really have the kind of players and playing field that can operate in a radically altered environment.

We haven't looked at all the variables, examined the multiplicity of inputs and outputs.

Finally, we don't know precisely where the alleged benefits will flow either geographically or demographically, nor do we know precisely how great the penalties will be and who will be asked to suffer them.

Before we even begin to devise options, we simply have to know much more than we do today.

My urging, then, is that we need to know these things before we run the risk of dismantling what we have.

Telecommunications Policy: An Industry Perspective

Don Braden
President, Association of
Competitive Telecommunications Suppliers

Much of the discussion so far has focused on the interexchange and bypass issues. I would like to take you on a brief tour of the Terminal Interconnect situation. I think you will find this instructive because contrary to what is generally believed, the issues are not entirely resolved in that market. Furthermore, I feel there may be some important lessons in studying this market which will assist in considering how to implement the options facing us in the interexchange and bypass debate.

The present state of the terminal interconnect market can be described as regulated competition. I was pleased to note that Dr. Globerman stated that regulation and competition are not mutually exclusive policy options. As we have grown to expect in this industry, there is wide variation in policy application across Canada.

Terminal Interconnect Market

British Columbia

BC Tel rents equipment at CRTC approved tariffs and sells equipment outright as well. BC Tel carries out this activity through a division. BC Tel must submit quarterly reports to the CRTC on the profitability of its direct sale activity.

Alberta

AGT competes directly without any price regulation. AGT's competitive business is subject to a broad burden test.

Manitoba/Saskatchewan

There is no multiline interconnect permitted in these two provinces. Interestingly though, a subsidiary of Manitoba Telephone System (MTS) – MTX – has tendered on terminal business in Ontario.

Ontario/Quebec (Bell)

Bell rents equipment at CRTC approved tariffs, some with purchase options, and has the right to sell direct. Any sale business is subject to quarterly profit reports to the CRTC. Bell has also entered the market on a separate subsidiary basis.

Ontario/Quebec (Non Bell)

Those areas regulated by the Provincial Boards have similar ground rules in place as in the Bell Territory.

Nova Scotia

Maritime Telegraph and Telephone (MTT) has applied for a change in its tariffs to permit terminal interconnect. Final arguments have been filed in that case.

New Brunswick

The Board is just concluding a broad issue hearing which has looked at competition at all levels.

Newfoundland

There is no multiline interconnection in the provincially regulated territories.

PEI

There is full terminal interconnection in the province.

Yukon/NWT/Nfld.

In those areas regulated by the CRTC there is terminal interconnection on the same basis as in Bell and BC Tel territory.

This example of the uneven application of policy is why industry groups are crying out for some sort of national coordination in telecommunication regulation. ACTS has argued for the establishment of a national association of Canadian Telecommunication Regulators. As a minimum ACTS would urge that any opposition to the CRTC joining CANPUT dropped. (Subsequently, the CRTC was elected to that Association.)

Another major characteristic of the terminal market is the reliance on behavioural rather than structural solutions to market problems, and here is where an important lesson can be learned. There presently exists in the terminal market a constant battle over telco pricing which has resulted in increased regulatory supervision rather than less. For example, there has not been final approval given to a proposed Bell competitive equipment tariff since the Fall of 1983 with one exception – Centrex III. This state of affairs does not serve Bell nor its competitors well. There is in my view a regulatory log jam caused by detailed price regulation. A question may be asked whether this is not caused by competitors seeking price protection. I believe there is compelling evidence that predatory conduct by the telco's cannot be dismissed as a valid public policy concern.

Pricing in Terminal Markets

Nova Scotia

A recent study done for the Board showed MTT's terminal business with a lower rate of return than monopoly services.

New Brunswick

Evidence supplied by New Brunswick Telephone (NB Tel) showed its terminal business with a negative return. Subsequent adjustments by NB Tel lead it to argue that the return was now positive.

Manitoba

Evidence filed by MTS in its last rate case showed its PBX business had a negative revenue/cost ratio.

British Columbia

Recently updated 5-way split studies by BC Tel show that its terminal business is in a loss position.

Ontario/Quebec

Bell's 5-split studies shown that their terminal business margins are getting slimmer. The company's first two quarterly reports on the sale of equipment showed costs exceeding revenue. Bell has exempted major portions of its competitive equipment from its last two rate applications.

Therefore, I would suggest that there remain some very real concerns about predation by telcos in competitive markets. One basic motive may be the very human pride of a monopolist attempting to maintain market share. Another possible reason for the low or negative returns is that the costing schemes upon which the pricing is based has methodological flaws which inherently cause loss situations. Finally the lack of extensive service costing by some telcos means that they simply have no way of determining the margins in their various service categories.

In my view this experience in the terminal interconnection market indicates a real concern over the behavioural approach to the boundary question. I sincerely hope that the substantial intellectual investment in the cost inquiry does not preclude the separate subsidiary approach as a viable policy option. I would also urge the academic community to delve into the record of this detailed price regulation to assist policy makers in assessing its relevance. Such an examination should include a review of transcripts and arguments and not just prefiled evidence.

Option Implementation

I would like to now turn to the policy side of option implementation. It strikes me that the real pressure for policy solutions began in earnest when parties began losing their positions in the regulatory arena. I do not feel there was pressure for a telecommunication policy while the CTC was asleep at the wheel. It was not until the new proactive CRTC began finding against the telcos did we see a major drive for political solutions. On the other side, the winning parties felt there was no need for detailed policy as they were getting satisfactory results from the regulator. In a broad sense this is where the parties line up today. I grant there are political scientists who debate the issue of policy direction from sincere public policy perspectives, but the private interests are really alligned behind their champions.

As a winner, the interconnect industry sees some concerns in political directives. While Woodrow and Woodside argue that users have the real lobbying power today, I would not like to match the lobbying strength of the telcos in the corridors of power. I would also argue that the testing and open discussions of the issues is seldom as apparent in policy developments. Even strengthened parliamentary committees can never be as vigorous at getting to the truth as the relentless cross-examination before an administrative tribunal. For instance, I ask you in the impact figures which the telcos have had to file in the interexchange hearing would have come out in a policy review or are they figures that are being used in the present rebalancing lobby. I suspect the lowness of the figures surprised a lot of people.

It is common knowledge that any attempt at detailed policy guidelines will be obsolete before they are gazetted. I would rather see a simple policy directive which says competition is (or is not) a valid means in attempting to achieve basic telecommunication goals. I recommend John Lawrence's speech at the McGill conference in May 1984 for a list of those goals. On the point of specific directives, it is important that any directives be given well before any hearing begins so as to protect the integrity of the hearing process.

From a competitor's point of view, I am always amazed at the lengths some will go to give economic legitimacy to the monopoly position. The arguments get more and more sophisticated from the early pollution of the network to the more recent economies of scope. Now we have heard at this conference that there may be a move to shift the definition of output in an attempt to find those elusive economies. Economies of scale or scope only have relevance in the monopoly argument in relation to the size of the properly defined market. In the interexchange hearing an argument could be made that the relevant market is all of Canada. Following that, it may well be that if these economies are important, CNCP with its national network and single management group may in fact be the low cost entrant with the loose confederation of Telecom Canada as the uneconomic providers.

It must also be kept in mind that economies of scale and scope are for the most part static measurements and the dynamics of a competitive market solution will in all likelihood overwhelm them.

In conclusion, I note that there remains a debate on who has the onus to prove that shifts in policy are in the public interest. I must argue strongly that competition policy is an excepted means of achieving broad policy goals in our economy. Those that would protect monopolies and restrict trade should bear the onus of justifying these positions.

Telecommunications Policy: An Industry Perspective

Wes Scott
Vice-President (Regulatory Matters)
Bell Canada

In my own way of thinking, a planning process involves the setting of the goals, identifying the alternative means or options of reaching those goals, and then implementing the option selected. In dealing with the implementation of policy, I have a basic problem. I have not seen anywhere an identification of the national goals or objectives in telecommunications. There has been creeping competition, true. But that has been on the basis of adopting happennings or trends south of the border. From an industry perspective, the problem is how to cope with ad hoc introduction of competition through regulatory decisions.

The other day I heard the story of two economists who went on a bear hunt. Reaching the hunting lodge, one of them suggested that they had better plan their activities for the hunting week, so they'd get the maximum productivity in terms of bear skins and bear meat. He said that since they believed in division of labour, one of them should specialize in getting the bears, while the other should skin them. They tossed a coin, and the next morning one of the hunters grabbed his rifle, and went out looking for a bear. He saw one, he knew what phase one called for, he took his rifle, aimed and fired. The loudest noise he got was the click of the trigger – he had forgotten to load it. That was enough to have the bear come charging at him. Phase two called for throwing the rifle at the bear, he missed, so now phase three called for running as fast as he could with the bear in hot pursuit. He ran clear to the hunting lodge, barged through the front door, and as he was heading toward a safe exit in the rear, he shouted to his companion: "Here comes the first bear, you take care of it and I'm going after the second one".

So, some of us in the industry feel like the hunter left behind at the lodge, having to take care of the bears unleashed upon him in a rather haphazard manner.

There have been several attempts at developing a national telecommunications policy, starting way back in 1969 with the establishment of the Telecommission. Fifteen years later, we still have no national objectives, ergo, no identified options. The latest effort in this series was set in motion by the Minister of Communications in 1983. In its submission to the Department of Communications in response to its call for input, Bell Canada reiterated its belief that further policy decisions should not be made before a comprehensive set of goals and objectives is established. And we identified the key objectives which should form the basis for a national policy. They are:

- Maintain a modern, reliable and efficient telecommunications infrastructure which meets Canada's needs;
- Resolve federal/provincial jurisdictional differences;
- Accord the telecommunications industry the flexibility needed to ensure continued provision of high quality service. Encourage research and development through supportive policies;
- Ensure that the telecommunications infrastructure evolves according to Canadian priorities;
- Ensure carriage of Canadian telecommunications traffic over Canadian facilities to protect the economic integrity of the Canadian telecommunications system;
- Promote the efficient use of telecommunications through pricing policies, whereby services are priced in relation to their underlying costs; and
- Where competition is present, all parties should be permitted to compete on an equitable basis.

In order to meet these objectives, we suggested, among other things, that the federal government should have prime responsibility for the creation and enunciation of a national telecommunications policy. Moreover, changes to the structure of the telecommunications industry, which would result if further competition is introduced, should be carefully considered for their impact on users, owners, and operators of the system. Changes, once made, are largely irreversible.

So, with all due respect, let me say that any consideration of implementing options at this stage is a bit like putting the cart before the horse. Assuming, however, that a full-scale competition is the national policy, then the logical next step would be to move the rates for telecommunications services closer to their costs. Absent monopoly supply system, rate rebalancing is no longer an option but an imperative. In both the United States and Canada, it has been public policy that long distance revenues be used to subsidize local service. In 1983, Bell Canada had a shortfall of approximately $1.2 billion in non-competitive local revenues, which had to be offset by revenues from non-competitive toll services.

Should a decision be made to increase competition in the provisioning of long distance telephone services, there would be strong pressure to redress the current rate imbalance. Increased competition and rate rebalancing are the two fundamental questions that must be dealt with by public policy makers. Such rebalancing can proceed over a planned time horizon in a manner which does not unduly affect the universality of telephone service.

Interestingly, unlike the US, there is no law declaring universal telephone service as a national goal or objective in Canada. The US Communications Act of 1934 declares as its purpose "to make available, so far as possible, to all the people of the United States a rapid, efficient, nation-wide, and world-wide wire and radio communication service with adequate facilities at reasonable charges". We have no such declaration of national policy or goal in Canada.

Even in the US, however, the question is being asked as to what is universal service. Does this mean a phone in every home? Or is it the availability of affordable phone service? If the former, we neither have nor will ever have universal service. If the latter, rate rebalancing will not jeopardize universal service.

Let me conclude by quoting from a recent talk by Peter Pitsch, Chief of the FCC's Office of Plans and Policy. He said

> As a general rule, you get what you pay for and you pay for what you get. In the ongoing debate about telephone pricing, these common sense propositions have often been forgotten. They have been replaced by the nonsensical propositions that costs can be shifted from consumers to business ('corporate giants' in the Congressional lexicon) and that there exist arrangements which will miraculously permit benefits to be reaped without costs being borne. That really would be miraculous! And if it were possible I would endorse it. But consumers bear all the costs of telephone service. That was true yesterday, it is true now and it will be true tomorrow.

Bell Canada has been in business for over one hundred years. It has survived, it has grown, indeed it has prospered. Its success has not been merely the result of some specific government policy at the time, but rather its inherent ability to provide the best possible service at reasonable cost. That commitment will not change – whether there is monopoly, duopoly, or full competition – Bell Canada will be there, and it will continue to meet the service expectations of its customers.

Changing Telecommunications Policy: A Policy Maker's Perspective

David C. Colville
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These studies are very useful input to the policy formulation process, a fact Premier Richard Hatfield acknowledged in his recent presentation to the CRTC regarding the interexchange proceeding when he referred to:

> a number of activities underway that will provide useful inputs to the determination of the public interest. These studies (and by the way, we include the CRTC hearing beginning next week in this category) will provide vital information that will be useful to governments in developing public policy to ensure that a proper balance will be drawn between the social and economic telecommunications objectives of Canada.

It seems to me that there are several key policy issues which must be thoroughly understood when considering a major change in our telecommunications system. Certainly two of these issues are rebalancing and bypass. These issues were addressed in the Maritime Premiers' submission to the CRTC recently.

> One of the major results of competition in telecommunications services will be that rates will be driven to reflect costs. The term currently used to describe this is "rate rebalancing". It is the key issue to be addressed

when looking at the competitive provisions of MTS/WATS service.

Two questions flow from this issue:

- If rates are rebalanced to reflect costs, what will the impact be on local and long distance rates and consequently on the affordability and availability of telephone service?
- If rates are not rebalanced to reflect costs, when steps will heavy telecommunications service users take to achieve greater economic efficiencies? In other words, does the current pricing structure provide a real incentive for heavy users to utilize new technologies to create private networks, bypassing the switched telephone network forcing the remaining consumers to share substantial rate increases to offset losses?

If Bell Canada's assessment of the marketplace is correct, then it could be that no rebalancing rates could have a greater negative impact on consumer rates in the long term than rate rebalancing. However, is Bell Canada's assessment correct? Is bypass inevitable under current rate policies. How much rate rebalancing would be necessary to prevent bypass? What effect do federal government policies have on bypass?

On the other hand, what penalties do Canadian businesses pay relative to their US competitors because of our current pricing policies. (I'm thinking here of Peter Grant's example of the book-seller.)

Several authors have suggested that through DOC and the CRTC much of the bypass threat could be controlled. When I see the number of satellite earth stations in Nova Scotia and remember some of the early federal positions on satellite earth station ownership, I have difficulty sharing their confidence that government regulation can control public use of new technology. I understand the proliferation of "illegal" earth stations is quite prevalent on the Prairies, particularly in Saskacthewan.

It seems to me that whether or not we introduce competition in the long distance message toll business we must give careful consideration to the current privacy structure. There certainly seems to be growing evidence that some form of rate rebalance, whether brought on by competition or regulation or both may provide some net benefit to Canadian society.

If it is concluded that a rebalanced rate structure is not only desirable but necessary to prevent uneconomic bypass and loss of business for many Canadian firms. Then it strikes me that one could take the view that if rates are rebalanced – why not competition? To this extent then I would support Professor Globerman's view that if we are to have competition, ideally rate rebalance would precede the competition.

In light of all the foregoing qualifications, it is difficult to see substantial value in allowing controlled entry into the message toll sector prior to rate rebalancing, including the abandonment of route averaging in favour of route pricing.

While I agree that deregulation is not necessarily our objective, it strikes me that competition without rate rebalancing will force a marked increase in regulation with the regulator being forced to artificially set prices or access charges to control market share. It seems to me that competition in a rate rebalanced situation would be more "pure", if I can use that term, and may lend itself more to deregulation.

Rate rebalancing could have an impact on our jurisdictional situation in Canada as well.

Richard Shultz has referred to the past decade as a "decade of failure" as far as the political process is concerned. As one of the players in that process, I am somewhat sensitive to his comments. Our system has been referred to as a patchwork quilt and the provinces are often characterized as impeding progress in this area. The main reason the provinces rejected the 1980 federal proposal to have an inter/intra split on telecom jurisdiction was because we could see what would happen if the federal government had jurisdiction over the high priced long distance service and we had the local and intraprovincial service. Federal politicians would become heroes reducing long distance rates, while provincial politicians would take it in the ear, both literally and figuratively, for higher local rates. Obviously, the more rates reflect costs, the more this concern is reduced.

If competition is increased the role of Telecom Canada will change. It seems to me it will either disappear or as someone indicated yesterday, we may have some form of investitude in which Telecom Canada becomes some form of corporate entity promoting interprovincial services in competition with CNCP and any other carrier. Such changes may provide some realistic options for our jurisdictional impasse.

So where do we go from here? In my view one of the major problems we have faced in dealing with this issue, particularly at the political level has been a lack of any empirical analysis. I think we are now getting this type of analysis. This was one of our objectives in proposing the study which Peat Marwick has just completed and which, in my view, has represented one of the more successful joint federal-provincial endeavours in this field.

I am hopeful that, particularly with the new government in Ottawa, we can participate in a meaningful manner in the DOC Telecom Policy review to develop national goals and objectives.

It seems to me that the political saleability of any major policy change, if that is our goal, will be whether or not the public perceives a significant change in rate structures as beneficial. Ken MacDonald has mentioned EAS as an example of telephone rating which runs against the concept of rate rebalancing. I am not sure I agree. To me, subscriber demand for EAS can be viewed as an example of customers willing to pay more for local service to achieve lower (in this case zero) long distance rates.

I can tell you that in Nova Scotia my minister and the government is very sensitive to major increases in utility rates. It was major increases in power rates identified with the previous government that was credited with causing that government's defeat and this current government's victory and considerable efforts have been made to keep power rates from increasing to keep this government in office. Furthermore, I don't think this sensitivity is unique to Nova Scotia. One has only to recall proposed 18 cent per gallon increases in gasoline to know that pricing issues can be sensitive at the federal level as well.

Before we make a major change in policy we are going to have to be sure that the consequences of not making the change are worse than rate rebalancing and/or competition.

Until October 25, 1983 we had the luxury of time to contemplate these issues – since we have not had that luxury. This is not necessarily bad for two reasons:

- the hearing is forcing hard evidence on the table, and
- the issue will force a political decision. Politicians cannot simply ignore the issue any longer.

I am hopeful that the pressure of this case and the new government in Ottawa will force serious political attention on this issue.

Changing Telecommunications Policy: A Policy Maker's Perspective

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My comments deal with three issues:

- The history of telecommunications policy-making in Canada,
- Some comments on the papers in this volume, and
- Where do we go from here?

As Richard Schultz pointed out, all our problems can be traced back to the creation of the federal Department of Communications in 1969, followed by 15 years of low politics and lack of action.

But 15 years is not a long time in this business. The US government has been pursuing anti-trust actions against AT&T for more than 60 years. The operations of Western Electric were affected in 1925 and 1956. The major change came only in 1983, when Judge Greene approved the divestiture.

Schultz is half correct in asserting that we have had 15 years of all talk and no action. On the federal policy-making side, we have seen the Telecommission, a task force on Computer Communications, and four telecommunications bills going no where. There have been numerous federal/provincial conferences and working groups, but little has changed as the direct result of this work. At the federal level, a number of important CRTC and DOC licensing decisions have been made, but telecommunications is still mired in a jurisdictional impasse and governed by outmoded legislation. Not a very impressive record.

What of the telecommunications industry? In the same 15 years we have seen almost unprecedented growth and progress. Canada implemented the world's first domestic satellite system. Two data networks now cater to business needs. The cable industry has grown by leaps and bounds. The world's longest fibre optics system has been installed in Saskatchewan. CNCP has announced its fibre optics network, which will eventually extend from coast to coast. All this has been accomplished without a dime of government money.

On the manufacturing side, Northern Telecom has emerged from the shadow of Western Electric to become a major industrial power in its own right. Other Canadian manufacturers have also flourished. We have on average one foreign delegation a week visiting Canada to examine our system. They marvel at its jurisdictional and regulatory complexity, but they all agree, it works and works well. The industry can take the credit for this, it did not come about as a result of government planning.

In my view, the achievements of the industry explain the lack of political action. *Telecommunications is not a problem industry*. Other sectors may be tumbling around our ears, railways and the postal service being two examples which have been plagued by rising deficits and falling service standards. Telecommunications on the other hand goes from strength to strength. Ministers do not get letters complaining about the price or quality of telecommunications services. The odd squeaky wheel has been silenced by a squirt of the CRTC grease gun.

Turning now to my impressions of the papers. The three main papers are most eloquent and elegant. The comments on them are informed and incisive. Hence, I will confine my remarks to the general rather than the specific.

I was very much struck by Alain de Fontenay's comment that much of the economic theory that is currently being applied to telecommunications pricing is adopted from theory concerning the production of widgets. I think this must be true because economists have convinced me that the current pricing system for telecommunications services does not make economic sense. It follows that some original research may be needed to develop a base of economic theory for the pricing of telecommunications services in a competitive environment. One that will give a measure of recognition to social objectives.

Another thing that struck me about these papers is the extent to which the debate on the future of telecommunications is being monopolized by economists and the legal profession. This is especially notable when we are dealing with the impact of technological change. Lawyers and economists by the nature of their profession are not bashful in offering their advice, and I value their advice on the economic and legal aspects. But where are the technologists in this debate? Must we have the costs and benefits of new technology pointed out to us by political scientists?

All of the three main papers refer in one way or another to the blurring or convergence of computers and communications. Perhaps the technologists can help out here by shedding some light on where technology may be taking us. The achievements that I referred to earlier were accomplished gracefully, they did not require the premature retirement of investments, or massive rate increases. Surely, we can learn from this experience in determining the technological choices for the future. For example, how will the introduction of the Integrated Services Digital Network affect our notions on competition? What is the influence of technology in determining the boundary between competition in facilities and services?

Much has been said on the jurisdictional issue. It has been stated that the CNCP/AGT case will resolve it. In my opinion it will not. When the final decision comes down, and assuming it is clear cut, there will still be the need for consultation between the two levels of government. The "winner" of the court action, if that's the right word, will have a slightly larger lever to use in subsequent negotiations, that's all!

We have read a lot about bypass. The only technology I know of that can currently be used to bypass telecommunications facilities on a large scale is radio. What this means in practice is that as long as the Department of Communications controls the radio spectrum, bypass is controllable. In the past, DOC has been very conservative in its approach to spectrum utilization and its policies have not been such as to encourage Canadians bypassing Canadians. However, it is becoming increasingly obvious that bypass via foreign facilities is going to be the problem. This can only be prevented in the long term if our rates and services are comparable with those of our international competitors. There is no escaping that conclusion, which leads me to comment on the concerns expressed by representatives from Manitoba and Saskactchewan.

Doug Smith gave an excellent presentation of the Saskatchewan concerns. The government of Saskatchewan, through Sask Tel, has done a magnificent job in extending high quality low cost services to a small population scattered over a large land area. Those conditions favour the provision of basic services by a monopoly carrier. It is understandable that

Saskatchewan is reluctant to change what for it has been a winning combination.

The problems of Saskatchewan are analogous to the elderly couple, perhaps not very prudent in their youth, now trying to make ends meet by renting out a couple of rooms in the old homestead, and charging very high rents. One room is occupied by a relative, who pays the high rent because he would otherwise have to support the couple more directly. The second boarder is from out of town, he pays the high rent because there is no other place to stay. Then he learns another place may be for rent across the street at a lower rent, and not feeling any obligation to the old folks he prepared to move out. The old folks cry foul, and request the local council to prohibit the renting of rooms by any other person.

The old folks are of course the local rates, the relative the intra-province long distance calls, the second boarder the subscribers who make interprovincial calls. The place across the street is CNCP, it may even by US carriers. Many other couples face the same dilemma. Ma Bell, the well-heeled widow, has seen the light, and seeks only some time to redecorate the front parlour. BC Tel is not far behind. Manitoba on the other hand, like Saskatchewan, longs for the old days. Who doesn't? But change is inevitable, even when it hurts. The challenge is to adapt, to minmimize the damage.

Many speakers have commented on the dearth of factual information on the Canadian scene. Ken MacDonald drew attention to evidence submitted by Bell which is not supported by studies. He perhaps unwittingly strengthened this point by quoting an article from *Maclean's* magazine. This "evidence" is also unsupported, but because it reaches a far wider audience than the CRTC interrogatories, it contributes to the hysteria which surrounds the issue of rate-rebalancing.

Where do we go from here? All of you know the Department is carrying out a review of telecommunications policy. We are doing our very best to involve the provinces in this work. Our objectives are to develop national policies within the existing jurisdictional framework. Give and take will be needed and fragmented solutions may evolve. In the Schultz language of high politics, "regional differences must be accommodated". From our analysis of the submissions, it appears that there are certain things only governments can do, such as agreeing on the national dimension of telecommunications, and introducing modern telecommunications legislation. Both carriers and users are asking that governments get on with it. It is my hope that governments will do what has to be done, and then get out of the way.

Some mention has been made of the CNCP application as an important event in the policy development process. The CRTC is taking steps to ensure that a very broad Canadian data base is assembled to aid the decision-making. The hearing will ventilate many of the issues we have discussed here, and I am confident the Commission will deal with the application in its usual competent manner. (See CRTC Telecom Decision 85-19, August 29, 1985.)

I am equally confident that the CRTC decision will be appealed to Cabinet, calling for a political decision. That is one reason for the policy review, the government, in consultation with provinces, will need to get its act together. For the first time, our elected representatives will be face-to-face with the issue. The policy review, the CRTC proceedings and seminars such as this one, will all contribute to the creation of the extensive economic, legal and technical data base from which decisions affecting the future of telecommunications will be made. But in the final analysis, the future pricing of telecommunications services is also a social and political problem, which may require compromise solutions.

These papers make it clear that we have a problem, and that Canadians will want a managed pragmatic solution instead of an ideological thrust based on competition for the sake of competition. I am hopeful that we can manage our way through what will be a wrenching experience. Everyone's help and patience will be needed. We must find a way to make the undisputed benefits of technology available to all sectors of the population in all parts of the country. The telecommunications industry, an industry of which all Canadians can be proud, has developed over one hundred years. The principles, which have guided the development of the industry over that period and have served Canadians well, now appear to be in need of some adjustment. But they cannot and should not be discarded or changed overnight.

Changing Telecommunications Policy: A Policy Maker's Perspective

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My own analysis of the present debate can be summarized as follows:

- the current pricing structure in the telecommunications industry is grossly inefficient; and
- therefore we must make it efficient.

I do not dispute the consensus of the economists concerning the efficiency of the price structure. The existence of extensive cross-subsidies throughout the telecommunications system has been recognized for many years. For a long time, it has even been considered to be a public good.

Today, universal access to the telecommunications network is virtually achieved. The physical network compares very favourably to any. The vast majority of users is quite satisfied with the service.

These are three basic characteristics of our present telecommunications service which must be preserved.

If, by whatever means, the price structure can be made economically efficient, on top of all this, then I would immediately say: "let's do it!". However, the options available for change all carry disadvantages which are likely to adversely affect these characteristics to be preserved. My primary concern is the readiness with which the burden of change would all be transfered to the local user. The most commonly used illustrations of the required transfer are based on cost studies which consider all services, including toll, as incremental to local service.

This concept has a strong historical foundation. However, I would like to suggest that, prospectively, we could adopt the concept that all services, including local, are incremental to toll. Respective growth rates and bypass technologies would suggest this approach. Crude it is, but no worse than the other.

Local loops are a necessary key into the homes and businesses of this country for all services. It does not strike me as being logical to charge them all solely to the local service users. A 50-50 split would be just as good and would be more closely related to the volumes of revenues generated by the local and toll services respectively.

All this is to emphasize the fact that we do not know very well the degree of inefficiency of the current price structure. We do not know either how this inefficiency compares with that of other important sectors of the economy. All this is vital, if the general public is to be convinced that it will be better off overall, after any change is implemented.

First, all governments, federal and provincial, will need to share that conviction, if a truly national policy is to be established. Judging from past history and past attitudes in the field of telecommunications, this is not an easy task. The importance of a truly national policy must be stressed. To the extent that intercompany subsidies exist, a decision of the federal regulator could negatively impact on carriers outside its jurisdiction. Surely, this should be done only after the elected governments involved have determined the public interest through consensus. Otherwise, we might just have to accept our inefficient telecommunications price structure as a necessary public evil.

In the meantime, a decision is required concerning Phase III of the cost inquiry. The methodology will have to be tested and results evaluated. This is one of the tools required to know better the degree of inefficiency of the price structure.

Proposals for rate rebalancing, with complete supporting rationale, might be entertained. Their impact on the general public should be carefully examined.

This does not suggest an absolute ban on competitive activities. There are service opportunities which are innovation-based and which aim at developing and serving new markets. It is clear to me that such endeavours should not be barred or delayed by traditional monopolistic artificial barriers.

It seems premature to open up the traditional voice market to competition. I have attempted to express the prerequisites of considering such an issue. We should avoid just re-allocating the existing market, without generating new ones.

As for substituting competition for regulation, I would recommend that you read Richard Schultz's "Trojan Horse" on that matter.

Let me emphasize that the Canadian telecommunications situation does have many similarities with that of the US. The market size, the industry structure and the regulatory framework are not the same, however.

I hope that we develop a Canadian solution to our situation, watching the US experience, avoiding their mistakes, while correcting our own.

In this very complex situation, let me offer a final word of wisdom from my basement computer. In Pig Basic, it would list like this:

If not sure and poke
Then peek garbage.

An Agenda for Telecommunications Policy Change

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Introduction

If there is one theme that almost all observers of the telecommunications industry can agree on, it is that the economic realities in telecommunications have changed rapidly, markedly, and permanently, and continue to do so, and that it is absolutely necessary that telecommunication policy reflects an inevitable continuing pressure for increasing competition, and allows maximum flexibility for the industry so that the benefits of new technologies can be developed and made available to all Canadians as soon as possible.

As policy-makers, our first responsibility is to ensure that our efforts are realistic, forward-looking, and do not inhibit human initiative or cater to vested interests. We must be part of the solution, and not part of the problem. Otherwise, in sectors undergoing fundamental technological and structural changes such as telecommunication, we may end up, at worst, like King Canute, or, at best, having removed one sector from the very short list of industries in which significant economic growth and productivity improvement is available in the 1980s.

I would like to draw on some of the papers and the experience of the Bureau of Competition Policy to put forward an agenda for policy change which, in my view, is pro-active and would facilitate the maximum utilization of available technologies and opportunities in telecommunication. Taken as a whole, this agenda will create a framework that will allow the essential flexibility that the Canadian telecommunication industry needs to develop in a manner that responds rapidly to changing technology and new market opportunities, and to spread the benefits to all parts of Canadian society.

To a large extent this agenda is founded upon direct experience with the telecommunication industry and its regulation arising from numerous interventions by myself and my predecessor before both federal and provincial regulators. I would be less than candid if I did not say that these interventions have left me with strong concerns about the effectiveness of direct regulation in this new environment. Conversely, this experience has persuaded me that the mix of regulation and competition which I will propose is capable of ensuring the best range of telecommunication products and choices for consumers delivered by the most efficient system possible.

Premises

I have developed my policy agenda from a number of premises which I feel reflect the state of the telecommunication industry and its regulatory environment:

- First, the scope of the so-called "natural monopoly" in telecommunication has been dramatically cut back by technological change and now covers, at most, the provision of local switched network services. All other voice and data telecommunication services are subject to efficient provision on a competitive basis without, ultimately, the need for the imposition of direct regulatory control to ensure adequate supplies and reasonable prices. Direct regulation will still be required with respect to remaining monopolistic activities, and, as a practical matter, some regulatory involvement may be necessary in facilitating new entry. This premise was also the starting point for the recent ATT divestiture. In that case, the extent of the natural monopoly was accepted to be the local loop and the Class 5 switch. With the integration of telecommunication network engineering and design in North America, this boundary for the natural monopoly should be equally sensible in Canada.
- Second, technological change is increasingly blurring old distinctions between the fields of telecommunication, broadcasting, computing and data processing. It follows that policy efforts to preserve obsolescent distinctions are likely counterproductive and are unlikely to succeed in the medium to long term.

- Third, the technologies employed in providing voice and data services are merging.
- Fourth, social policy considerations of "universality" of basic telephone service will remain a political priority. But, as I will discuss shortly, although the traditional means of pursuing this goal is being questioned, I am not pursuaded that we are in a situation of having to accept rapid or radical primary exchange service rate increases before we allow further increases in competition.
- Fifth, the transition to a more de-concentrated telecommunication industry will have a number of common characteristics with the transition periods experienced by other industries in Canada and other countries. We can derive important lessons from experience in industries such as trucking, securities, railways, and airlines which were once almost entirely directly regulated. The most important of these lessons are:
  (a) As we have heard, some consumers perceive themselves to be winners, others to be losers. But, overall, the product quality and price choices available will increase with the result that consumers will be able to more closely tailor their telecommunications services to their situation.
  (b) There will be savings for users as a whole, in part derived from greater efficiency, and in part from downward pressure on input prices. This downward pressure will be greatest for inputs which possessed a measure of market power. Some incumbent firms may well have a difficult time adjusting but, in time, most will.
  (c) The output of the industry will also be greater than it would be in a totally controlled environment, largely through the product and production innovations introduced by new entrants. In particular, the overall level of utilization of fixed assets will improve and be more adaptable to cyclical fluctuations.
  (d) We have also seen that, in transition periods, those having a vested interest in a status quo regulated environment, which is closed to significant new entry, allege that new competition will give rise to all sorts of economic and political crises. Consistently, these forecasts are proven by events to be exaggerated, and, often later on, many of these same

voices become strong supporters of the new competitive environment.

In short, increased competition is not a zero-sum game with winners being balanced by losers, but one with net economic benefits.

- My sixth and final premise is that it is essential to ensure the competitiveness of Canadian businesses that rely on telecommunication services. In a world that is becoming increasingly competitive, we cannot afford to handicap Canadian exporters or those who compete against imports. Telecommunication will be both an increasing cost and a potential source of improved efficiency.

Policy Agenda

Having perhaps dwelt a bit too long on prologue, I now turn to the substance of my policy agenda. Its six elements represent a short list of initiatives necessary to match policy with reality and with the need for a framework that will provide room for creativity and growth. The items on the list are:

- Coordinating federal and provincial regulatory responsibilities, including establishing effective regulation of Telecom Canada activities.
- Adopting consistent Canada-wide, liberalized rights of customer-owned equipment attachment – particularly with respect to business equipment and the ability to establish local area networks.
- Eliminating carrier prohibitions on service resale and sharing.
- Eliminating institutional barriers to alternative networks by freeing Telesat Canada from its subservient role to the telephone company members of Telecom Canada and liberalizing federal microwave licensing policy.
- Adopting a clear notion of what constitutes basic telephone service, including determining what measures, if any, are needed to ensure its "universal" availability, and the costs of such measures.
- Adopting a structural approach to creating a fair competitive environment.

Federal and Provincial Coordination

History teaches us that necessary federal/provincial coordination is often more easily articulated than achieved. In telecommunication, the difficulties of this task are compounded by a crazy-quilt of jurisdictions over the industry which to date have been based on companies rather than functions. One major consequence has been that effective direct regulation of Telecom Canada's national system planning, rating, interconnecting and revenue settlement practices has been omitted. Yet it seems obvious that fully effective inter-exchange service competition is not possible if new entrants are allowed only into centres within a particular territorial jurisdiction and cannot have equal access of fair terms to all the telephone numbers and communities to which Telecom Canada and its members presently have access.

Simply put, there is an urgent need for a single regulatory authority having general responsibility over all Telecom Canada companies for toll service interconnection and public switched network access cost allocation between Telecom Canada members and network service competitors. An interprovincial rates jurisdiction in this body may also be necessary to ensure that revenues recovered through Telecom Canada are based on the costs of providing Telecom Canada services in order to protect against selective carrier pricing actions which may substantially lessen network service competition during the transition period to self-sustaining workable competition.

Obviously some jurisdictional compromises at both the federal and provincial levels may be necessary. Further delay in facing this problem may result in the policy options of governments being circumscribed by the courts. As many of you know, the issue of the CRTC's jurisdiction over interprovincial service interconnection with provincially regulated telephone companies is now before the Federal Court in an action brought by Alberta Government Telephones.

National Terminal Attachment Rights

Terminal equipment competition is the most developed area of telecommunications competition. As a result, it illustrates most clearly the need to obtain federal and provincial policy consistency. In my view, the increased range of features and choices made available by liberalized terminal attachment, particularly with respect to PBX's and key systems, has lead to improved business productivity, lower telecommunications costs, and new information-based businesses. New terminal attachment rights have also contributed to improved overall network efficiency (to be distinguished from carrier efficiency alone) through decentralization of switching modes and reducing circuit distances. Yet these benefits are, at present, largely available only to subscribers in BC, Ontario and Quebec. Even the less restrictive approach of the CRTC creates barriers to the creation of efficient Local Area Networks through the restrictive definition of "premises" as contiguous property, and through limiting opportunities to share PBX capacity.

The current situation can only lead to consumer frustration, a distortion of interprovincial comparative advantages in information-intensive industries, and incentives to further concentrate these activities in areas where they are presently located.

For these reasons, I consider that Canada-wide liberalized terminal attachment rights, particularly for business equipment, must be established quickly.

Eliminating Carrier Prohibitions on Service Resale and Sharing

My view is that such prohibitions are essentially devices to protect the viability of carrier tariffs which had been developed in a monopolistic environment in order to discriminate among user groups according to the value they are perceived to attach to these services. The absence of the prospect of service resale and sharing allows the carrier to ignore the accounting cost of providing particular services. More importantly, such prohibitions remove incentives to providing services at minimum cost and to designing services to meet user needs in the best possible fashion. Prohibitions on service resale and sharing may be sustainable in a one supplier environment, but they are not sustainable in a competitive environment.

Transmission service resale and sharing is a necessary aspect of interexchange competition in which resale carriers offer less than premium quality long-distance service to price conscious (mainly residential) subscribers, particularly in the residential market. Resale and sharing have been shown in the United States to be an effective market-based incentive to the development of cost-based rates and to overcome the poor linkage in certain carrier tariffs between the level of service aggregation and user needs.

The closer aligning of prices with the minimum costs of providing services costs which resale and sharing encourages allows for a price structure which provides better signals for telecommunication investment decisions and may result again in greater overall network efficiency. I also agree with Hudson Janisch that unrestricted resale and sharing is necessary to bring tangible benefits of competition to non-big business subscribers.

Removing Institutional Barriers to Long Haul Competition

Perhaps the single most concrete step which could be taken now to increasing competition in non-local telecommunications services would be to extricate Telesat Canada from its connecting agreement with Telecom Canada, and to put in place ancillary policies to ensure that Telesat can compete directly with terrestrial carriers for long-haul traffic. These ancillary policies would include fair national interconnect rights and unrestriced resale and sharing.

Under the current arrangement, Telesat Canada can sell two-way communication services only to Telecom Canada members or CNCP Telecommunications. Telesat's growth in two-way services is now limited arbitrarily by a Telecom Canada policy to assign Telesat one-third of the "eligible growth circuits" which Telecom Canada projects it needs to serve the demand for its services expected to be generated under its message toll/WATS price structure. Satellite planning and Telesat's own price structure are, in turn, constrained by this policy.

As a result, the telephone company members of Telecom Canada can procede to plan and construct terrestrial long haul facilities confident that their closest potential rival, Telesat, will get no more than a fraction of the long distance demand they generate, and cannot directly stimulate demand on its own. Terrestrial facility overbuilding and inefficiency may result as the current arrangement creates no need to make terrestrial-versus-satellite cost comparisons that would be necessary in a competitive environment.

I am pleased that this Telecom Canada traffic allocation policy has been flagged by the CRTC as an area of concern and further investigation. In its recent decision on Telesat's 14/12 Ghz service rates (Telecom Decision, CRTC 84-9), the Commission commented as follows:

> . . . Notwithstanding the fact that Telesat currently operates within the framework of the "one third of eligible growth" constraint set by Telecom Canada, the Commission will in the future expect Telesat to be thoroughly familiar with the effects on its utilization forecast of rating and marketing decisions made by Telecom Canada. (p. 38)

Earlier in the decision the Commission noted in a critical manner that:

> Telecom Canada's forecast requirements for satellite capacity based on message toll demand are accepted by Telesat with little further scrutiny. . . . Telesat has apparently not played an active role in the development of rates for new satellite-based services offered by Telecom Canada, even though the company agreed that rates can have a significant effect on customer decisions to use satellites. (p. 38)

Second, federal microwave licensing policy must also be significantly liberalized. Applicants must now demonstrate some public interest and need to be served, and that existing facilities can't satisfy this interest and need. This approach gives preference to established common carriers and inhibits the development of competitive private microwave networks. I believe that it is essential that a clearer public understanding be developed of what, if any, spectrum constraints exist in the Canadian environment and that every effort be made to exploit all the available spectrum for telecommunication purposes through the use of new technologies and new entrants.

Basic Services and Universality

I have previously indicated that I am not yet pursuaded that increased network service competition must be preceded by, or accompanied by, politically hard-to-digest primary exchange service rate increases, or that universality of basic service is threatened.

New competitive pressures are one reason being cited for "rate rebalancing". This line of argument maintains that message toll rates are inflated and are used to subsidize local services, and that these inflated message toll rates present a distorted price signal that will result in "uneconomic" new entry in long haul services which amounts to a waste of resources.

I have been pleased to see that several participants at this conference have recognized the fact that a very high proportion of the costs that have traditionally been attributed to "local" services are in fact related to the provision of facilities and services, which are necessary for the provision of both local exchange and long distance services, and are not usage-sensitive costs. In his Report on Phase III of Cost Inquiry, the CRTC's Inquiry Officer, correctly I believe, characterized such joint costs as costs of network "access" which properly constitute a separate monopoly service function distinguishable from local calling and long distance calling. Bell Canada, in its case in the Cost Inquiry, has endorsed this distinction, and, throughout the proceeding, emphasized that primary exchange service included both local calling and overall network access functions.

We can all agree that local and toll services should recover their respective usage-sensitive costs. The difficulty arises in determining what sharing of joint access costs between local and long-distance services will yield the most economically efficient results which still achieving social policy objectives. It is in this area of appropriate access cost recovery that I frankly feel that the data is wanting and considerable further empirical work is necessary.

However, since local network access will continue to be a natural monopoly activity for the foreseeable future and joint network access costs represent a large part of carrier costs, I would agree with Dale Orr and Hudson Janisch that we will continue to have considerable scope for some time to incorporate some social policy considerations, such as rate-averaging among "rate groups", into regulated access charges notwithstanding increased competition or a move towards rate rebalancing.

For example, I would note that the illustrative rate rebalancing program presented by Bell Canada as an interrogatory response in the CRTC's interexchange proceeding (Bell (CRTC) 22 May 84 – 303 IC Supplemental) would continue to rate-average among communities according to traditional primary exchange service rate groups and would also maintain primarily exchange service rates for business subscribers which are significantly higher than for residential subscribers in the same rate group.

In assessing carrier claims as to the extent of rebalancing necessitated by interexchange competition, we should all keep in mind that telephone company representatives raised the spectre of unpalatable local service rate increases when the CRTC considered CNCP's first interconnect application in 1979. The record demonstrates that these claims were exaggerated. Since the advent of CNCP network competition, and liberalized terminal attachment, CRTC-regulated telephone companies have performed very well without massive local service rate increases.

I should also like to note that the mere presence of bypass activity or new entry by service suppliers does not necessarily indicate uneconomically high carrier prices are being used to generate substantial internal cross-subsidies. It could be equally true that the bypasser or the new supplier has simply developed a more efficient lower cost means of generating the service compared to the established carrier, either because of superior technology, or because the carrier incurs higher input costs, has invested in too much capacity, or has failed to provide the service which is best tailored to certain customers' needs. These are clearly empirical issues. However, I very much doubt that we can meaningfully address questions relating to carrier efficiency in the absence of the incentives and cost benchmarks created by greater network service entry.

At this stage I am also frankly unable to accept on their face carrier estimates of the costs attributable to local and long distance service or to business versus residential services. As I will subsequently note in relation to regulatory costing methodologies, the available service costing techniques depend upon numerous engineering and managerial judgments as to the appropriate allocation of company-wide accounts which have themselves yet to be scrutinized and adopted by the CRTC, or, I believe, any other Canadian telecommunication regulator. Moreover, even within the relatively narrow bounds that accounting and cost studies can be valid, I very much doubt, in light of the significant degree of commonality in resources employed by carriers to provide their various services, and the rapidly changing technological environment, that any one cost study with its many internal assumptions would likely ever be seen as completely accurate or authoritative.

It is, however, clear that the telephone companies can and should be required to provide considerably more and better information on how and why they have allocated costs within their costing systems so that interested parties can evaluate the reliability of their estimates and attempt crude estimates of the nature and magnitude of any cross-subsidies that are said to be inherent with the current price structure and set of service classifications. However, I must reiterate that the effects of cost creep, overcapitalization, and lack of innovation cannot be identified in accounting studies. Only competition provided by new entrants can provide the needed discipline and standards.

These factors suggest to me that it is time for interexchange competition. It is neither necessary nor appropriate to introduce a five-year waiting period for rate rebalancing before allowing interexchange competition. As the situation evolves and more facts are available, there will be time to adjust and adapt to the various consequences of the increased competition. At a minimum, increased interexchange competition could be accompanied at the same time by some rate rebalancing but only if more pursuasive costing information is provided by the carriers.

We must get on with the job of determining exactly what kinds of service should be subject to a "universality" policy, exactly what needs to be done to ensure "universality" for particular classes of consumers, the costs of achieving this goal under current rating policies, and alternative approaches, such as LMS and direct taxpayer subsidies for certain user classes.

We should also attempt to determine whether the current rate group differentials and business/residence exchange service differentials result in inter-community or inter-subscriber network access cross-subsidies, and, if possible, to what extent. This examination should form the basis of a rational discussion of who should eventually pay more and who should pay less for telecommunication services.

For their part, regulated carriers and their regulators must recognize that the established carriers should no longer be gearing their systems to serve all new or even all existing telecommunication service demands. An increasing portion of telecommunications will flow over specialized private systems and networks which do not require access to or integration with the carriers' local switched networks.

In other words, the carriers and their regulators must recognize the fact that the carriers may well become smaller businesses as opposed to the constantly growing ones they have been over the last three decades.

Adopting a Structural Approach

I strongly favour structural and market-oriented measures, over what might loosely be called "regulated competition", in order to encourage fair competition and to prevent anti-competitive cross-subsidization of competitive services from monopoly service revenues. I favour requiring carriers to provide competitive services, to the fullest extent possible, through fully separate unregulated business organizations as opposed to regulatory service costing coupled with continued supervision of competitive service rates.

Consequently, the provision in the Bell Canada Reorganization Act, tabled in the last session of Parliament, allowing the CRTC to order Bell Canada to conduct competitive telecommunications activities through a separate subsidiary, or under other specified conditions, is a necessary tool of modern telecommunication regulation. I also consider that a power to forebear regulation of carriers' competitive activities is an equally necessary tool.

For a truly effective separate subsidiaries approach, it may also be necessary to require competitive subsidiaries to issue some shares to the public. Minority investor interests may be necessary to protect against non-arms' length resource transfers with the carrier parent on terms which disadvantage the subsidiary and give an unfair preference to the parent.

The object of these measures is to clearly contain monopolistic activities within an entity which remains fully subject to traditional public utility regulation, but to allow, to the fullest extent possible, business freedom in competitive activities. A separate subsidiaries approach also ensures that a clearly identifiable cost structure exists for the monopoly and competitive sides.

I believe that Phase III of the CRTC's Cost Inquiry has convincingly shown that regulatory costing suffers from a number of problems that severely restrict its usefulness, for example:

- Only rough approximations of service category costs are possible. Ample scope for anti-competitive cross-subsidization of particular services will remain.
- Extensive reliance must be placed on carrier management studies and engineering judgments as to how the costs of common-use resources should be allocated. The regulator and its staff would have the new responsibility of monitoring and auditing the costing system and evaluating the reasonableness of this myriad of cost allocation judgments in addition to their regular workload. This may well tax the regulator's abilities and resources and reduce the overall effectiveness of traditional regulatory methods.
- Reliance on a costing system may result in more regulation, rather than less, as the regulator, in evaluating the output of the costing system, must gain extensive knowledge of how the carrier conducts its competitive activities and may, within the evaluation process, begin to second-guess management decisions on the competitive side.

Conclusions

It seems clear that there is a wide consensus at this conference with respect to:

- potential benefits for Canada in increasing competition in the telecommunication industry;
- the issues that need to be addressed to capture and distribute these benefits in an acceptable manner; and
- the range of approaches to these issues.

Indeed, most, if not all, of the proposals that I have advanced have been discussed by others over the last two days.

There is, however, one important matter which we seem to have skirted around or perhaps more accurately, buried in the traditional Canadian aversion to change and risk: how quickly should we be moving forward to facilitate greater network service competition.

Bell Canada is speaking of the need for a five-year period to rebalance rates before interexchange competition is allowed. Others, including myself, have recognized that more and better analysis is possible and would help to clarify the issues and options surrounding access costs and universality. These views flow from a desire to deal with the real or perceived social and private costs.

Unfortunately, there are also real and very important costs to delay. Peter Grant and Professor Globerman have described the real benefits that are lost if new technology products and services are not developed and not spread throughout the economy to the business and residential users of telecommunications services. Canadian manufacturers of equipment will be put at a disadvantage relative to foreign competitors who have more ready access to demand for the new generation of technological products. Increased competition now is essential to bring these benefits from the realm of theory to reality.

Increased competition is also essential to move the policy debate from relatively sterile hypothesis generation to a world of facts. We have heard a lot of comments on the need for more facts, regulatory study, and policy reviews. Unfortunately, none of us, nor the regulators, are omniscient. We cannot hope to forecast all the dynamic effects, efficiencies and innovations that more competition could yield.

Several authors have also commented that, in their view, the Canadian situation is sufficiently different from the US that the US experience cannot be relied on for policy making in Canada. Yet, even under this view, it seems self-evident that only more competition in Canada can provide the information they want on the breadth of new services that can be created, the size of the pent up demand for new and existing products at lower prices, and the extent to which competition can lower costs and increase our productivity in both the telecommunication industry and among telecommunication users.

Nevertheless, it seems clear, that the weight of evidence requires the conclusion that there will be significant net benefits for Canada if we adopt the policies that I have proposed. It also seems clear that the urgency is not for further study but rather to put in place, as quickly as possible, the policies and regulatory decisions needed to implement the six proposals I have enumerated. The inherent implementation delays in both the public and private sectors will slow the process of increasing competition more than enough to allow for all the appropriate studies to be done.

The telecommunication industry is at a critical point in its development. The longer Canada delays in grasping the opportunities available through greater competition, the more we will be falling behind our international competitors in telecommunication services and equipment. The host of industries that will increasingly rely on new and lower cost telecommunication services to remain competitive in export markets or against imports will also find it more difficult to survive.

The benefits to be gained by adopting competitive solutions now will far outweigh the costs. Action is required immediately.

Telecommunications Policy: Lessons from the United States

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My assignment is to discuss the telecommunications experience in the United States and what lessons it may hold for you here in Canada.

When I first came to Washington in 1970, the communications field was relatively simple. Basically, we had only the telephone, telegraph, radio and television industries, with each more or less pervasively regulated by the Federal Communications Commission. Then, on one short decade, all of this dramatically changed. A remarkable technological revolution swept through the communications industry, bringing with it a host of new products and services for use in the American home and office.

As a result of these dynamic events in the marketplace, regulation also began to change. Although there were many starts and stops along the way, as there always is with government activity, two basic and largely parallel trends developed during the 1970s. In two words, they were competition and deregulation.

Now the twin thrusts of these trends did not come about, I would suggest, because a small band of determined regulators in Washington willed it. Instead, they emerged largely in response to the impetus of changing technology and private sector developments. If the government in the United States should receive any credit (or, if you like, blame) for this evolution, it is that technology and marketplace advancements were not frustrated or delayed as, perhaps, they might have been under a PTT-type arrangement. Instead, at the FCC, we did go with the flow – so to speak – of the truly awesome developments occuring in the telecommunications industry during that fateful decade.

As a result, let me be somewhat chauvinistic in saying that I think the United States has blazed a trail for the rest of the world in the communications field. Just as the Japanese have forced other industrialized nations to reshape their business practices tomake them more efficient and productive in order to be competitive, the United States' dramatic expansion in telecommunications goods and services promises to have something of a similar effect.

After all, the workplace of the future – in the increasingly service-oriented economies – is the office and not the factory. Unfortunately, for many years, white collar environments were resistant to gains in productivity. Now, however, the computer-communications revolution is changing all of this:

- point of sale terminals are providing instant credit verification and inventory control;
- interconnected word processing and database services for office workers are enhancing the flow and efficiency of business operations;
- and a vast array of other micro-computer driven devices, tied together by telecommunications lines, are truly revolutionizing the American workplace.

If other nations intend to match US productivity gains from these developments, they must revise their entire approach to telecommunications and information policy. From my vantage point at least, it appears that no other country is more aware of this need – or more advanced in attempting to meet it – than Canada.

Now amidst all of these plaudits I am handing out, let me quickly acknowledge that not everything which has been accomplished in the United States has been flawlessly handled – far from it. I want to acknowledge that the government's role during the 1970s, as it is today, was largely reactive to private sector innovations rather than the product of overall, long-range planning. And the action taken emanated from different branches of the government – FCC, Department of Justice, the courts, the Congress, and even the states – many times reflecting different attitudes, mandates and means of implementation.

As such, when one reviews the US experience as perhaps a guide for other countries, he might want to be a little selective in his judgment; and, also, to realize that, even if the substantive result ultimately to be achieved was in the public interest, there were perhaps some shortcomings along the way from the standpoints of timing or transition.

Let me be more specific in this regard. Taking a look at different submarkets, I believe that the introduction of competition into the Customer Premises Equipment market, and the resulting deregulation that occurred, has been an unqualified success in the United States. Today, the American consumer enjoys an almost bewildering assortment of options in telecommunications equipment – from an $8.00 handset to other devices that cost several hundred dollars. And the market is even more expansive for sophisticated business equipment, much of it supplied, incidentally, by Canadian companies (like Northern Telecom, Mitel, Gandalt, etc.).

All of the arguments against an open equipment market which I and my colleagues at the FCC received so fervently in the mid-1970s have proved not to be significant. The equipment registration program, in truth, has provided all the regulation necessary to establish a highly competitive marketplace environment, one in which the individual consumer can choose the product he wants on the basis of cost, quality and diversity of options.

The results in the transmission submarkets, however, have been more erratic and uncertain. One policy which I believe has been very successful is unrestricted sharing and resale. Again, this was a policy initiative fought hammer and tong at the FCC during the 1970s but, in my judgment, it is clear that resale has helped to ensure cost-based rates and also has stimulated the creation of value-added (or enhanced) networks.

The difficult problems have come – and remain – in the area of voice telephone service, both long distance and local. Both of these markets, of course, have been traditionally served in the United States by a huge, integrated monopoly. Our initial efforts to introduce competition in the long distance market were directed at specialized areas: private line and value added service, etc. But the courts intervened and – really with no advance planning and no transition – the Execunet case introduced full competition into the intercity voice market.

Obviously, local interconnection is the lifeblood of a long distance competitor, and the FCC was faced with local operating companies which were naturally motivated to interconnect only with their affiliated interexchange carrier. The controversies which resulted from this situation constituted a substantial portion of the regulatory problems I encountered during my tenure at the FCC. They also led, in large part to the very drastic break-up of AT&T, an action whose wisdom and necessity will be open to question for a very long time to come.

In any case, it is clear that the AT&T divestiture left many highly significant and controversial issues to be resolved. This, of course, represents one of the problems inherent in the development of important public policy through litigation and judicial mandate. There is a tendency, I have found, not to give the kind of initial attention to details and transitions that ordinarily are part and parcel of the regulatory approach to policy-making. Thus, today, answers to such complex issues as access charges, equal access, by-pass and universal telephone service remain still to be fully determined. These are issues, incidentally, on which the future structure and entire competitive nature of the interexchange telecommunications market depend.

Would it not be ironic in the extreme if we were to experience all of the agony, dislocation and expense of breaking-up the world's largest company to fulfill, presumably, the objective of competition—and end up without any viable competitors to AT&T? While I don't predict that this result will occur, it is at least a possibility if reasoned judgments are not made on the kind of crucial unresolved issues that I have enumerated. And keep in mind that reasoned judgments may not be easy to attain given the politically-charged controversy over the cost and efficient provision of telephone service in the United States.

In this regard, the fundamental problem facing policymakers is how to stimulate technological innovation and economic efficiency—through competition and deregulation—without harming the quality of existing services or upsetting current rate levels or structures. This delicate balancing act, and its highly political nature, is vividly reflected in the current bypass dilemma in the United States.

A serious problem exists in the availability of high-speed digital circuits at the local level. Various alternative services—using microwave, digital termination systems, or two-way cable television circuits—are being tried in order to alleviate this concern. At the same time, large users of interexchange services have substantial economic incentives to avoid payment of the traditional long distance-to-local telephone subsidy through bypass of the local exchange. And with the development of long distance competition and the AT&T divestiture, these large users just might happen to be the interexchange carriers themselves.

If large users by-pass the local exchange, the result may be an increase in local telephone charges with the rest of us (that is, we residential subscribers and voters) and, perhaps, a diminution in quality of service as well. Thus, to many in Washington and elsewhere today, by-pass has become a dirty word – something to be taxed, outlawed and prevented at all costs. But, to others, by-pass is really only competition and new technology at work. And these people, including members of the Federal Communications Commission, have attempted to find ways to ensure the viability of the local telephone exchange through the implementation of a system of access charges which are designed to eliminate the incentive for uneconomic by-pass.

But access charges on end-users add to the rising cost of telephone service, and, thus, completion of the FCC's access charge plan (beyond multi-line business users) proved not to be feasible during the election year of 1984. We will see what happens after that. However, this is an issue which must be settled soon and, for the record, I continue to believe that something along the line of the Commission's end-user plan should be adopted. Clearly, however, the FCC will have to do a better job of pre-selling their subsequent efforts on Capitol Hill than it did in 1984.

Aside from access charges, I predict that the most controversial question in the telecommunications field next year will be whether AT&T should be deregulated. As I see it, this issue is certain to be a high stakes, high pitched battle at the FCC between AT&T and its competitors and customers.

From AT&T's standpoint, the appropriate outcome is clear: the Commission has systematically deregulated interexchange telecommunications services, and its competitors (MCI, GTE Sprint, SBS, etc.) all have been deregulated as well. Thus, AT&T emains as the only provider of long distance telephone service still subject to active federal regulation. AT&T argues that it alone must submit new or revised rates and services for public comment and FCC review prior to their effectiveness, thus creating filing and litigation costs not borne by its deregulated competitors. Moreover, AT&T contends that such procedures require disclosure of its business plans prior to implementation and expose the company to regulatory delays and risks of disapproval. In all, AT&T believes that all of this regulation represents a serious impediment to effective competition with its long distance competitors.

On the other hand, the competitors – together with a number of user groups – believe that it is premature to make judgments about AT&T's long-run market power so soon after divestiture and before nationwide equal access is available. They contend that precipitous FCC action could doom an emerging competitive interexchange industry in its infancy. They also see FCC oversight of AT&T's rates and services as publicly beneficial and a necessary check on the power of a company which still controls some 90 percent of the interexchange market (AT&T argues, incidentally, that its market share has declined into the 60 percent range).

The FCC initiated an inquiry into the overall regulation of AT&T early in 1984. My guess is that the Commission leadership would like to move to specific deregulatory proposals soon, but I also believe that this battle is just beginning at the Commission and on Capitol Hill. While this long-range struggle ensues, the agency may begin to consider some separate but related deregulatory actions relative to AT&T.

The FCC's Computer II rules require that AT&T provide unregulated equipment and enhanced offerings through a structurally separated subsidiary. This subsidiary – AT&T Information Services – is subject to a number of limitations designed to prevent the affiliation with AT&T to permit it to engage in anti-competitive activities. AT&T sees these rules as archaic and unnecessary in light of the divestiture. The company believes that the restraints interfere with its becoming a fully integrated end-to-end supplier of services and equipment. On the other hand, AT&T competitors in these markets believe that such safeguards are necessary in light of the company's continuing market power.

Turning to the other side of the AT&T divestiture, the separated Bell Operating Companies (BOCs) were severely restricted in their business activities by the Consent Decree, essentially to providing local exchange services. Very recently, Judge Greene has rejected BOC efforts to expand into enterexchange and other prohibited spheres of activity. As I see it, then, the biggest problem facing the BOCs is whether they will be able to retain their local telephone service monopolies against competitive inroads caused by FCC-mandated interexchange competition.

In all, I feel that the BOCs must deal with the by-pass issue effectively by finding a reasonable solution to the access charge question and by providing good and responsive service to their customers. But clearly, competition in the local market will be an increasingly difficult challenge for them in the future.

Decision Making in Telecommunications: The Interplay of Distributional and Efficiency Considerations

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1.0 Introduction

On August 29, 1985 the Canadian Radio-Television and Telecommunications Commission (CRTC) handed down a 125-page decision dealing with five telecommunications issues (Telecom Decision 85-19).[1] In perhaps the most important part of the decision, the CRTC denied CNCP Telecommunications' application to connect its system with that of Bell Canada and B.C. Tel in order to compete with them in the long distance public voice telephone market (MTS and WATS). A separate part of this decision rejected the proposals by Bell Canada and B.C. Tel to rebalance their rates in order to reflect more closely what they say are the relative costs of providing local and long distance services. Under their proposals, rates for local service would have been increased by one hundred to two hundred percent while long distance rates would have been reduced, on average, by about two-thirds.

The Commission, however, adopted a generally pro-competition stance on three issues of lesser importance: resale and sharing by customers, interconnection of private local networks for non-voice services, and interconnection of the facilities of B.C. Rail to B.C. Tel to permit the former to offer private line voice and data services.

In rejecting CNCP's application and full rate rebalancing the CRTC chose the *status quo* in order to avoid a series of substantial changes affecting the distribution of income.[2] It did so while acknowledging that if it had granted the applications significant efficiency benefits, including innovation and technological change, could have resulted. The Commission's decision reflects the apparently widespread belief that Canadians are obsessed with a "redistribution ethic" and continue to be willing to see economic regulation used for a variety of *social* purposes which have never been properly defined.[3] The Commission rejected CNCP's application because it believed that the benefits produced by competition would be less than indicated in the application and, more importantly, because the benefits would not be universally available.

In his prepared remarks at the press conference announcing Telecom Decision 85-19, the Chairman of the CRTC, André Bureau, stated that while CNCP's application had been denied, it would be wrong to interpret the decision as a reflection of the Commission's position with respect to increased competition in the long distance telephone market. Rather, he said, the decision had been based on the merits of that particular application alone.[4] Indeed, several observers have argued that the Commission agreed in principle with the idea of interexchange competition. Despite the Chairman's disclaimer, however, the burden of the CNCP decision, particularly when it is read along with the rebalancing decision, has been to establish a set of criteria for entry into MTS and WATS markets that are all but impossible to meet.

The immediate editorial reaction of two newspapers illustrates the conflict between efficiency and redistributional considerations that is at the heart of the entry and rebalancing decisions in Telecom Decision 85-19. The Vancouver *Sun* praised the CRTC's "wise" decision, saying that the CNCP application "represented the wrong way to do it at the wrong time."[5] While the paper favored an end to the monopoly held by Bell Canada and B.C. Tel, it argued that competition should be "introduced in an orderly fashion at a later date without jeopardizing universal access to the phone system." The paper recognized that local measured service may have to be brought in, but its watchwords were caution and careful analysis, saying that "the United States' experience has demonstrated (that) the break up of a communications monopoly can cause more problems than it solves."

The *Financial Post* said that "we hope for the sake of technological advance and the fostering of competition that CNCP will not back away from another thrust at the market."[6] It argued that "an anticompetitive stance (by the CRTC) would of course, be intolerable. Canadian long-distance rates are already acknowledged as putting our businesses at a competitive disadvantage with American companies." The *Post* also expressed its weariness over the strong pressure to keep local rates low and subsidized: "No government is willing to permit local rates to pay their own way. The telephone, it seems, is another sacred trust." It recommended that the proposed "public process" to address rebalancing begin by "defining just what level of charge for local service is considered 'affordable'."

In the discussion which follows I propose to examine in more detail the rationale for the CRTC's decision and the consequences which seem likely to flow from it. In Section Two I look at the CNCP application and provide a brief summary of the arguments in favour, advanced by CNCP, and the arguments against, put forward by the Consumers' Association of Canada. After outlining the CRTC's reasoning, I offer a critique of its decision in this important case. Section Three is devoted to an analysis of the rate rebalancing issue addressed by part IV of Telecom Decision 85-19. The discussion includes a sketch of CAC's position, an account of the Commission's reasoning, and a critique of the decision. In Section Four I review the generally pro-competition aspects of Telecom Decision 85-19. These include resale and sharing (part V), interconnection of intraexchange systems (part VI), and B.C. Rail's application for interconnection (part VII).

Section Five looks briefly at federal policy developments subsequent to Telecom Decision 85-19. These suggest that the contradictions between efficiency objectives and the politics of redistribution associated with liberalizing entry into long distance public telephone service and with rate rebalancing are alive and well and living in Ottawa.

Finally, in Section Six I draw some brief conclusions.

2.0 The CNCP Decision

2.1 CNCP's Arguments[7]

The main elements of CNCP Telecommunications' argument in support of its application were as follows. Over the past two decades Canadian public policy, as signalled by the decisions of the CRTC and the Cabinet, has favored increasing the scope of competition in telecommunications. CNCP's proposed entry into MTS and WATS was the next logical step in this process.

A study by Data Resources of Canada indicated that a 15% reduction in long distance rates would have the following effects on the domestic economy in the first five years of competition.

- The GNP would rise by $1.73 billion.

- Average annual employment would rise by 16,800.
- The rate of inflation would decline by an average of .05 per cent annually.
- Real disposable income would on average be $199 million higher each year.
- The Federal deficit would be reduced by an average of $459 million annually (CNCP, 1985, p. 7).

More competition in MTS/WATS services would improve the international competitiveness of Canadian business because about one-half of our GDP is information-based, and economic growth is tied to the efficiency of the telecommunications sector. Users of CNCP's public long distance telephone service would realize savings of up to 30% over current telephone companies' (telco) rates.

CNCP offered to pay access charges to interconnect with the telcos as determined by the CRTC plus any additional payment required by the regulator in order to "maintain local rates at levels consistent with sound public policy" (CNCP, 1985, p. 8). Its business plan was worked out on the basis of access charges of 11.5 cents per minute. Later, the CRTC indicated that the average contribution by the telcos from MTS/WATS was about 30 cents per minute.

Service was to be phased in, beginning with seven major cities (Quebec City, Montreal, Hull, Ottawa, Toronto, Vancouver and Victoria). By the end of the fifth year all cities over 25,000 in the areas served by Bell Canada and cities over 10,000 in areas served by B.C. Tel would be served by CNCP. In 10 years CNCP would cover all subscribers in the Bell and B.C. Tel areas.

CNCP estimated that at the end of 10 years it would have acquired only 8% of long distance revenues in a greatly expanded market. This assumed that the price elasticity of demand was -1.3 and that CNCP would offer rate discounts of 20% to 30% while the other telcos would reduce their rates by 15% for calls over 100 miles. Bell Canada on the other hand estimated that CNCP would obtain 17% of total long distance revenues in 10 years, while the Canadian Business Telecommunications Alliance argued that CNCP's estimates of market penetration were "vastly overstated". CNCP and others, such as the Director of Investigation and Research, argued that with lower rates total long distance revenues would rise and that lower rates would require all telcos to become more efficient and imaginative—a point made by a Bell executive.

CNCP argued that its main competitor would suffer little adverse effect. Bell's own estimates of its return on equity after ten years of competition showed only a slight decline, from 19.2%

to 18.5%. These figures were based, however, on a set of assumptions that biased the estimate of Bell's return downward; that CNCP would capture 17% of the market, that local rates would stay constant, that Bell would not reduce its long distance rates, and thus that overall demand would not be stimulated by lower rates.

CNCP argued that "due to the expansion of the market and CNCP's payment proposal, there is no need for any local rate to increase because of CNCP's entry ... In fact, expansion of the market and increased efficiencies should permit local rate reductions" (CNCP, 1985, p. 14). Bell had estimated that to meet its profitability targets local rates would require a total increase of $1.55/month on average over five years. B.C. Tel put the comparable figure at between $0.91 and $1.81.

According to CNCP (1985, p. 18), "the threat to universal telephone service is not competition but the telephone companies' proposal to embark on a totally unjustified rebalancing of local and long distance rates." CNCP did not advocate rebalancing nor did it believe it would be a necessary consequence of its entry into the MTS/WATS markets, arguing that it was purely arbitrary to assign to local service all of the fixed, common access costs incurred to carry both local and long distance calls. Moreover, the costing formula from which they had been derived (the Bell Canada Five-Way Split) had been widely criticized and had not been approved by the CRTC.

CNCP pointed out that a study by Peat, Marwick and Partners, commissioned by DOC and eight provincial governments, indicated that:

- with or without competition telcos could expect a healthy growth in long distance telephone use and revenues; and
- the adverse impact on the long distance revenue-sharing plan operated by Telecom Canada could be offset by a *one-time* increase in local rates of about 50 cents per month on average. (This result was based on the assumptions that Bell Canada and B.C. Tel would lose 20% of their Telecom Canada and intra-company basic toll traffic, and that the price elasticity of demand was less than one.) (CNCP, 1985, p. 15).

CNCP argued that very few parallels could be drawn between the recent U.S. experience and Canada. While the U.S. had been engaged in divestiture and deregulation, neither was implied by the CNCP application. In particular, CNCP was not advocating deregulation – in fact it wished to see a single Federal authority having jurisdiction over all of telecommunications in place of the "existing hodgepodge of jurisdictions" (CNCP, 1985, p. 16).

2.2 The Consumers' Association of Canada's Perspective[8]

In general terms, CAC was "opposed to rate rebalancing, long distance competition, and local measured service"[9] because they believed that these changes would not benefit consumers. In particular, they were concerned about their adverse impact on low income households, on the elderly and on non-profit organizations that make extensive use of the telephone (CAC, 1986, p. iii).

Competition in MTS/WATS markets as proposed by CNCP "would have meant lower long distance rates for residential subscribers, but the lower rates would not have been without a cost. This cost would probably have taken the form of higher rates for local service." This was the main reason why CAC opposed CNCP's application (CAC, 1986, p. 28).

According to CAC, if Bell Canada's and B.C. Tel's share of the long distance market declined, as it had to do by definition, or if they were forced to lower their rates to compete, the revenues available for sharing with other telcos via Telecom Canada would be reduced. Hence, "even those subscribers in the other seven provinces who would not have benefited from CNCP's application would have ended up facing higher rates for local services" (CAC, 1986, p. 29). CAC did not refer to CNCP's estimate of the likely size of the increase – a one-time jump of 50 cents per month – or to the possibility that a price cut could lead to an increase in *total* long distance revenues if the price elasticity of demand were greater than unity.

CAC (1986, p. 29) argued that "CNCP was not able to demonstrate that any of (the) alleged benefits of competition would have occurred" (increased efficiency, more innovation, cost reductions). It is, of course, a logical impossibility to prove that such changes "would have occurred" when they are predicated upon a change in market structure that the regulator refused to make. CNCP necessarily had to rely on economic theory and more importantly on the effects produced in Canada and the U.S. where competition had been allowed in some telecommunications markets.

According to CAC (1986, p. 29) "the CRTC did not reject competition as such, rather they rejected CNCP's application . . . Competition has not been defeated, it has only been postponed." What CAC does not mention is that the set of criteria implicitly established by the CNCP decision before the CRTC will allow entry are such that it is hard to imagine how any potential entrant can meet them.

2.3 The CRTC's Reasoning

CNCP Telecommunications was so confident of CRTC's approval of its proposed entry into long distance public telephone service in competition with Bell Canada and B.C. Tel that "photographs of equipment purchased for long distance service were displayed at a press conference, held in a hotel room with a bar stocked for celebration". Moreover, the company had ordered full-page ads in four newspapers proclaiming that "the future of long distance dialing is here." They had to be withdrawn.[10]

Why did the CRTC – apparently so unexpectedly – reject CNCP's application? A major factor in its decision seems to have been scepticism about the purported benefits: "The Commission is not convinced that CNCP would be able to meet its commitment to provide universal service (within 10 years) and to offer price discounts of the order of magnitude assumed in its business plan (20% to 30%)." (p. 45)

In general terms, the Commission's view of the potential impact of competition in MTS/WATS markets was favorable:

- competition would create increased pressure to lower MTS/WATS rates toward costs;[11]
- competition would create pressure to increase productivity and reduce costs and these savings would likely be reflected in lower MTS/WATS rates, which in turn would have a positive impact on the performance of the Canadian economy as a whole;
- competition would be likely to result in increased innovation and flexibility with respect to pricing and marketing of interexchange services;
- competition would probably lead to the introduction of new services and features more closely tailored to the needs of individual customers;
- competition would provide a range of quality of service options at differing prices;
- competition would likely result in the more rapid introduction of improved switching and transmission facilities, (p. 44).

In summary, the CRTC appears to have been impressed by the benefits of competition in MTS/WATS markets, but not with CNCP's specific proposal. Yet, from its reasons it is hard to believe that any applicant could meet the agency's criteria.

The CRTC seems to have adopted the following line of reasoning in arriving at its decision. The assumption that CNCP would be required to pay contributions toward the recovery of access costs of 30 cents per minute led the Commission to have reservations about the financial viability of its proposal. CNCP's plan was based upon contributions of 11.5 cents per minute, but the Commission found that, on the basis of the Five-Way Split methodology of Bell Canada, the existing MTS/WATS rates incorporated an average contribution "in the order of 30 cents per minute" (p. 45). If CNCP were required to pay contributions at this rate the CRTC expected that CNCP's net income would be negative in each of the ten years in its forecasts. "Consequently, the project's internal rate of return would fall well below what the Commission would consider a reasonable level" (p. 46). Even if CNCP set its long distance rates equal to its competitors it could not earn a reasonable return if contributions of 30 cents per minute were required. Further, if CNCP had to pay the 30 cent rate for access charges, it would be "financially restricted to offering very limited price discounts and serving a limited number of routes" (p. 46). Having set up this series of Catch 22s, the CRTC went on to draw the conclusion that "the benefits of customer choice and supplier responsiveness would, both in the short term and in the long term, accrue only to a small number of primarily high volume toll users or those in the limited number of serving areas selected by CNCP for entry" (p. 46).

More generally, the Commission concluded that "any advantages of lowering MTS/WATS rates considered necessary or desirable could be achieved without competitive entry" (p. 47). In other words, the regulator believed that by requiring monopoly suppliers to lower their long distance rates it would be able to create the benefits of competition. This indicated some misunderstanding on the part of the CRTC as to how competition as a social process operates.

The Commission saw in selective entry by CNCP a threat to the "principle that, in general, telephone subscribers should pay comparable rates for MTS calls over comparable distances" (i.e., route-averaged prices). Hudson Janisch (1985, p. 15) points out that at page 27 of the decision route-averaging is described as a telephone company *practice* while 20 pages later is is elevated to a regulatory *principle*. In his view this is one of a number of examples of "unacceptable carelessness" in the decision: "a practice should not be elevated to a principle without an explanation!"

The Commission considered the possibility of granting CNCP a discount from the level of full contribution to access costs but rejected it on two grounds. First, there would be a substantial risk of permitting uneconomic entry into the MTS/WATS market.

Second, the overall contribution from that market by Bell and B.C. Tel would be reduced, and hence CNCP subscribers would obtain a benefit at the expense of higher local rates for existing subscribers. Furthermore, the CRTC concluded that if CNCP were allowed to enter without a contribution discount it would subsequently be forced to apply for a discount in order to become financially viable. Given that CNCP would already have been in the market at this point, the CRTC felt its options for regulatory action designed to balance the need for lower toll rates against the need for affordable local rates would be limited.

The Commission also rejected CNCP's application since it would have required "substantially increased regulatory intervention" particularly because CNCP could not pay full contribution for at least 10 years (pp. 48-49).

Finally, the CRTC argued that even with full contributions, entry by CNCP would have a small adverse impact on the revenues of telcos outside its jurisdiction via the Revenue Settlement Plan operated by Telecom Canada. If a contribution discount were permitted, the adverse effect would be greater.

2.4 The CRTC'S Reasons as Criteria for Entry

One way of better understanding the implications of the CRTC's reasons for not allowing CNCP to enter MTS/WATS markets is to restate them as criteria which presumably must be met by any potential entrant in the future. They are as follows:

- The entrant must be able to "guarantee" it will be able to offer universal service within 10 years so that the benefits of competition are widely diffused and not confined to large scale users or users in major cities.
- The entrant must offer substantial discounts from prevailing prices (20% to 30%).
- The entrant must not offer a lower quality of service because existing telcos might wish to match the new lower price and lower quality offering and the telcos "would be likely to seek to be permitted to provide a lower quality of service on routes not subject to competition" (p. 47).
- The entrant must make a contribution to access costs which is derived from estimates by its rivals using methodology that has not been formally approved by the regulator. (Indeed, in Telecom Decision 85-10 the CRTC refused to adopt Bell's Five-Way Split approach without modifications.)[12]
- The entrant must not subsequently apply to the CRTC for a reduction in the full contribution rate.

- The entrant, even though it will be operating in competition with a telco, must prove that it will earn what the regulator calls a "reasonable rate of return" while meeting all other criteria.
- The entrant must not have the effect of making it necessary for the CRTC to actively regulate rates, level of contribution, and quality of service in those markets served by the entrant.
- The entrant must not have any adverse effect on the revenues of telcos that operate *outside* Federal jurisdiction.

According to the CRTC Chairman's press release accompanying Telecom Decision 85-19, "it would be wrong to interpret the decision as a reflection of the Commission's general position with respect to competition in the long distance market." Yet, as Hudson Janisch points out (1985, p. 15), the decision when read as a whole, particularly if one combines the reasoning on CNCP's entry with that regarding rate rebalancing, "seems to be saying—rebalancing first, then possibly competition." In fact, the CRTC states that MTS/WATS rates could be lowered without competitive entry (p. 47) and later decides that it will eventually do so after another "public process" and consultation with federal and provincial officials.

The critical point is this: could *any* entrant meet the set of criteria implicit in the CNCP decision?[13] As Janisch (1985, p. 15) notes, "CNCP was judged on the basis of a continuing system of full contribution which the CRTC promptly went on to abandon in favor of rate rebalancing" in the succeeding section of the decision. He asks, "Why is CNCP to be judged by a standard which is no longer to be applied to the telephone companies?"

2.5 Flaws in the CNCP Decision

The CNCP decision is characterized by more than "unresolved internal tensions, bordering on contradictions" (Janisch, 1985, p. 15). It contains flaws so great that it should cast telecommunications regulation into the same degree of disrepute as provincial trucking regulation. One consequence, ironically, may be that it will speed the process of liberalizing telecommunications regulation. The decision must be faulted on several grounds.

Paternalism: In reaching its decision to reject CNCP's application, the CRTC took an inappropriate and unnecessary interest in the financial viability of CNCP's proposed services. This went far beyond its statutory mandate to ensure that telephone rates are "just and reasonable" and that these rates do not confer an undue preference or advantage. In fact, the Commission even went beyond the "laundry list" of factors it had developed for ensuring that the "widest scope" was given to the public interest test when this was applied to applications for interconnection.[14]

The CRTC's concern with the financial viability of CNCP's business plan was misplaced. The financial viability of a *monopoly* supplier is of legitimate concern to its regulator, particularly when the user or users must incur large costs in switching to a new supplier in the event of exit or bankruptcy. However, the viability of any *single* supplier in a competitive context is irrelevant. The regulator should only establish the ground rules (notably setting the contribution rate to prevent uneconomic entry), and then should let the entrant's shareholders decide if the game is likely to be worth the candle.

What if CNCP had found it was losing money competing with Bell and B.C. Tel in MTS/WATs markets, and had decided to exit because its future prospects were also unattractive? Its subscribers would not have gone without long distance service. They would have simply returned to the bosom of Ma Bell by dialing into the network, as they had done before signing up with CNCP (who was going to require them to dial a much larger number of digits). By its reasoning in Telecom Decision 85-19 the CRTC is now regulating the right to fail in what the U.S. experience indicates is a structurally competitive market. The CRTC has been so steeped in the regulation of monopolies that it is apparently incapable of recognizing that competition involves risk-taking and that the existence of risk means that not all new product or service ideas will succeed nor will every firm flourish.

This being said, though, CNCP is hardly a corner store operation run by neophytes and backed by widows and orphans. In 1984 it had revenues of $338 million, profits of $16.3 million and a capital investment of $351 million. It is jointly owned by Canadian National Railway, one of the largest Federal Crown Corporations, and in 1985 ranked thirteenth on the *Financial Post 500*, and by an enormous conglomerate, ranked second on the same list.[15] Obviously, CNCP's backers understand the need to take risks and can also afford to cope with them even if the CRTC were to set the contribution rate at 30 cents per minute. If CNCP turned out to be wrong about the size and profitability of the market it wished to enter who would have been hurt? Only its shareholders. Perhaps the CRTC's rather paternalistic concern about the financial viability of CNCP's entry was an overreaction to events following its series of decisions on pay television.

Pareto Improvements: In the "Conclusions" section of the CNCP decision the CRTC attached great importance to the diffusion of the benefits of competition to all subscribers in the territories served by Bell and B.C. Tel (see pp. 44-47). In particular, the Commission was concerned that in both the long and the short run the benefits of competition would accrue "only to a small number of primarily high volume toll users or those in the limited number of serving areas selected by CNCP for entry" (p. 46). To avoid such concentration of benefits the regulators effectively prevented a Pareto improvement to the welfare of telephone subscribers within its jurisdiction viewed as a whole. Why should major users (likely to be large businesses) or those living in larger cities (the origin and destination of large volumes of traffic) have been denied a substantial improvement in their welfare just because comparable benefits could not be extended to everyone? The non-beneficiaries would *not* have been worse off in terms of what they would be paying for telephone services as a result of a decision to allow CNCP to compete in MTS/WATS markets, provided that the CRTC had set the contribution rate at the appropriate level. The idea that this change in regulation should *not* be made because the benefits would not be very widely diffused is the same tired and foolish argument advanced by the opponents of new entry into airline routes and by the opponents of certain types of discount fares proposed by air carriers. The naysayers argued that because entry would occur only on the major routes and because discount fares (based on rational seat management) would be offered primarily on heavily travelled routes between big cities, the regulator should not permit either to occur even though travellers in other areas would be no worse off.

In the case of CNCP, or of other entrants, the CRTC had all the tools necessary to ensure that subscribers in those areas which, by reason of "selective" entry, were not to be served by CNCP (because they were not in markets where prospects of profit were greatest) would not be made worse off as a result. Why are the Commissioners unable to establish a non-discriminatory level of contributions that deters uneconomic entry?

The CRTC's welfare norm is to insist that the benefits of competition, which it agrees are extensive, should be available to *every* subscriber or to none at all. Thus it is tacitly enshrining an "envy effect" in its utility function: the non-beneficiaries are implicitly assumed to feel worse off just seeing all those large volume users or big city folks obtain cheaper long distance calls while the rates they themselves pay are unchanged. In short, the

CRTC believes that no improvement for all is better than a substantial improvement for some and no change for the rest.

The Nature of Competition: The CRTC's reasoning in the CNCP case is indicative of a severely deficient understanding of how competition works in the real world. First, and most importantly, businessmen have to make decisions with imperfect information in an environment characterized by varying degrees of uncertainty. In short, they have to take risks. Not every competitive action (e.g., to enter a new geographic market, to offer a new product or service or to adopt a new method of production) will prove to be as rewarding as expected. Some of the best initiatives will turn out to be "dogs". Since risks *must* be taken, the real issue is who bears those risks. In this case, it was CNCP's shareholders that were bearing the risk. Its new customers were going to bear no risk. If the service was not worth its price they could discontinue it and switch back to their familiar telco. If CNCP found the service unprofitable and left the market its customers would bear no costs of interrupted service as there was a convenient alternative. So why should the CRTC have prevented CNCP from risking its shareholders' money on what they thought was an attractive market opportunity?

Second, even with careful planning, market surveys and game theory models of the likely response of competitors, in the real world of competition the proof of the pudding is in the eating. Until people have actually experienced lower MTS/WATS rates, for example, and the need to dial some more digits to use CNCP's service, it is difficult to say what the effects of entry will be. As the marketing adage goes, "Try it, you'll like it." Or you may not.

Recall the case of People Express, which was created in response to the deregulation of the airline industry. The existing carriers said its strategy would not work: travellers would not want to carry their own bags or pay extra to check them; they ould not like paying extra for coffee or soft drinks; they would object to the higher density seating arrangements; they would resent overloaded reservation lines and the absence of pre-selected seating. It turned out that the lower fares (originally about 50% to 60% of regular fares) more than made up for the loss of amenities and People Express grew enormously. More importantly, the new airline was able to enter routes that previously supported two or three flights per day and to find six months later that it could fill eight flights daily while its competitor(s) also offered additional flights. The point is that until travellers actually experienced the new services or potential travellers saw them in action ("seeing is believing"), no one could be sure how they would respond.

In the case of CNCP's entry into MTS/WATS who could say for sure how customers would respond? Who could say exactly how Bell Canada or B.C. Tel would respond? The latter depends in large part on the former. The impact on competitors, on total long distance revenues, on the funds available for other telcos via Telecom Canada, and on the amount of contributions toward access costs would depend to a considerable extend on the price elasticity of demand for MTS/WATS. This was an empirical question best answered by the analysis of actual experience. If the elasticity had turned out to be much less than unity and CNCP had not been able to make a go of it and/or there had been unexpected adverse consequences for local subscribers the experiment could have been terminated with few long term costs. The point is that we could only find what would happen if entry had been allowed to occur. Moreover, in this case, the costs of "experimenting" were low.

Third, competition is a *dynamic process*, not merely a (static) set of structural conditions or outcomes in equilibrium. Competition is all about what goes on in the continuous state of disequilibrium. Competition is the process in which firms pursue profits by means of a variety of strategies to obtain an advantage over their rivals. Even where outputs appear to be homogeneous, the number of ways in which a firm may seek an advantage over its rivals is large. As a dynamic process, competition stimulates and draws on innovation in its broadest sense.

In parts of its decision the Commission appeared to understand these points. For example, it said that competition could provide "greater customer choice and supplier responsiveness and an accelerated rate of diffusion of new technology" (p. 44). It went on to say that it was of the view that active rivalry – having to respond to competitors' prices – "would create pressure to increase productivity and reduce costs . . ." These savings "would likely be reflected in lower MTS/WATS rates." Moreover, the regulators said they believed that competition "would likely result in increased innovation and flexibility with respect to the pricing, new services and quality of service offerings." (p. 44)

It would be difficult to make the point more clearly. But the CRTC was not able to "screw up its courage to the sticking point" and allow CNCP to compete with federally regulated telcos. Why? Because the outcomes of competition would not have conformed with its distributional ideal. In the real world of competition, individual acts of rivalry (a price cut, adding new product features, a new method of distribution) do not benefit everyone. In fact, the benefits go largely to the customers and shareholders of the successfully innovative firm. Large gains however, provide incentives for rivals to do the same thing as best they can, and this diffuses the gains more widely. The reason why after entry CNCP would have focused on big users and dense routes is the same reason that Willie Sutton gave for robbing banks: because that's where the money is! Competition is a process by which firms go where they *think* the money is. Sometimes they are right and sometimes they are wrong. In any event, their best guess is far more likely to be right than the predictions of a group of regulators sitting in Ottawa. In summary, the CRTC's decision to block CNCP's entry and then, by lowering MTS/WATS rates by regulatory fiat, to begin the process of rate rebalancing is a very poor substitute for allowing competition to flourish.

3.0 The Rate Rebalancing Issue

During the course of the proceedings to consider CNCP's application, and in response to the CRTC's interrogatories, Bell Canada and B.C. Tel both filed detailed illustrative proposals for rate rebalancing. They defined this process as one of moving their rates towards costs while maintining their net revenues at existing levels. In the CRTC's words, "the principal element of the proposed rebalancing involved decreases in MTS/WATS rates of up to 70% and increases of as much as 150% in average rates for primary local service" (p. 50). Partly because of the way the issue arose there was some discussion during the hearing as to the nature of the decision the Commission was being requested to make. At the prompting of the Consumers' Association, the CRTC ruled that it had not been requested to approve specific changes in the rates for local and long distance services. Bell and B.C. Tel argued that the Commission should endorse the *principle* of rebalancing.

The Commission noted that "the vast majority of comments received in the proceeding . . . argued against changes to existing rate structures" (p. 51). This included comments of the Canadian Business Telecommunications Alliance (CBTA). The Commission ruled that rate adjustments of the magnitude proposed by Bell and B.C. Tel would be neither necessary nor desirable in the public interest at the present time.

3.1 The CAC's Position on Rebalancing

The Consumers' Association strongly opposed rate rebalancing. They noted that the proposal by Bell would result in increases in local rates of at least 100% and possibly as much as 300% over five years. For example, Montreal residents would find the costs of local service increasing from $10.65/month to $27.25. For most businesses, on the other hand, the increase in local rates would be less than 50%.

Recognizing that Bell was proposing to reduce long distance rates by an average of 50 to 60% (with an additional reduction of 25% for calls between major cities) the CAC noted that most households do not make enough long distance calls to offset the increase in local service rates. Most calls are now made when discount rates apply (CAC, 1986, p. 10). Moreover, according to Bell's own estimates, only about 15% of households would benefit from rebalancing. The main beneficiaries would be the major users of long distance services, primarily large businesses. B.C. Tel, for example, estimated that 1% of its business customers account for 58% of its long distance revenue from business.

The most serious concern for CAC was that, without some form of targeted subsidy, rate rebalancing would force many households off the system which now provides service to over 98% of Canadians. Bell's own estimate conceded that with full rebalancing some 160,000 households (about 400,000 people) would be deprived of direct access to telephone service. For many other low income households keeping their telephone service would force other sacrifices.

In the CAC's view, rate rebalancing is not a highly technical issue. It revolves around how access costs which are not traffic-sensitive should be allocated between local and long distance services and how much local rates for residential subscribers should increase relative to business rates. These are public policy issues, but "they have to be answered . . . on the basis of reasoned argument not on the basis of emotion" (CAC, 1986, p. 34).

CAC rejected the basic argument that long distance revenues subsidize local rates because it "assumes that all of the costs of the local loop should be allocated to local service." This loop is used to make both local and long distance calls. Although Bell indicates that 19 out of 20 calls are local (CAC, 1986, p. 14), the costs of the local loop are not usage-sensitive. In fact, 70% of the costs of providing local service are not traffic-sensitive acording to Bell (CAC, 1986, p. 7). Bell's data also indicate that both local and long distance rates recover their own usage-sensitive costs.

While the threat of bypass is the most powerful argument for rate rebalancing, CAC was not convinced, on the basis of the evidence available, "that bypass will occur in Canada on a scale that will threaten telephone company revenues." Moreover, Bell has said that it has been able to respond to the demand by large business users for lower long distance rates by offering volume discounts (CAC, 1986, p. 14).

According to CAC (1986, p. 31), "the CRTC approved rebalancing in principle." The Commission believed that long distance rates should come down and it moved to freeze Bell Canada's and B.C. Tel's long distance rates. In CAC's (1986, p. 32) view, "this freeze could give telephone subscribers a severe case of frostbite . . . (because it) means that any increases in the costs of providing telephone service will be passed along in local rate hikes."

3.2 The CRTC's Decision

Upon what sort of "findings of fact" or factual evidence was the CRTC's decision on rate rebalancing based? First, the Commission "concluded that there may be important differences between the cost results from a modified RSP (Revenue Settlement Plan) approach (used by Telecom Canada) and those from the (Bell Canada) Five-Way Split approach" (p. 54). However, the latter may be relied upon to support the conclusion that neither the competitive network (private voice or data lines) or the competitive terminal category make any substantial contribution to the recovery of the fixed access costs. It is the surplus of toll revenues over costs that is the "major contributor to the recovery of access costs."

Second, the Commission concluded, in line with its earlier ruling in Telecom Decision 85-10 stemming from the interminable Cost Inquiry, that "access costs generally are not usage sensitive but rather do vary directly with the number of subscribers having access to the network" (p. 55).

Third, the CRTC recorded its view that rate rebalancing would reduce the incentive for bypass, but that in its opinion Bell and B.C. Tel had overstated the current extent of the threat within Canada (p. 57). Furthermore, the threat of bypass in the immediate future was "not so extensive as to require a full rebalancing of rates."

Fourth, "the Commission agreed that allowing competitive entry into markets where rates are in excess of costs (e.g., MTS and WATS) is likely to create pressures to move rates toward costs in these and other markets. As well . . . there would be incentives for uneconomic entry" (p. 59).

Fifth, the Commission said that evidence produced in its hearing "could yield important economic benefits at the macro level" and that the estimates in Informetrica's study for Bell Canada and in the study by Peat Marwick were "indicative of the general economic gains to society which could be expected to result from rebalancing" (p. 62). The Informetrica study indicated that full rate rebalancing by all telephone carriers would result in a $2 billion expansion of Canada's GNP and a drop of 11% in the average price of telecommunications services. Some 70% of these gains would accrue if rebalancing was confined to Bell and B.C. Tel (p. 60). The Peat Marwick study, based on Bell's and B.C. Tel's rebalancing proposals, estimated a gain in consumer surplus (the difference between the value and cost of additional telecommunications output) in excess of $500 million annually (p. 61).

It should be appreciated that what the Commission rejected was *full* rate rebalancing *at this time* (p. 67). In the next paragraph the CRTC stated that it had been persuaded that "a number of economic and societal benefits would flow from a reduction in Bell's and B.C. Tel's MTS/WATS rates." It identified the economic benefits as:

- reduced communication costs for Canadian business;
- lower risk that traffic would be diverted from carrier networks within Canada through the U.S.;
- diminished incentives to divert investment and jobs outside Canada; and
- stronger disincentives preventing uneconomic entry and an improved environment for competitive opportunities in the MTS/WATS market in the future (p. 67).

As for the social benefits, the Commission suggested that a lowering of long distance rates would "serve to increase national communication and understanding by facilitating communication between people, both within and among the various regions of Canada and especially for those residing in sparsely settled and remote regions of the country" (p. 67). In other words, the CRTC was of the view that cheaper long distance calls would cause an increase in the volume of communications, which in its turn would improve mutual understanding within Canadian society.

Besides, even prior to the public proceedings to discuss the details of how, when and by how much MTS/WATS rates should be reduced, the Commission was proposing to cap the total dollar contribution derived from these services by freezing the aggregate level of Bell's and B.C. Tel's MTS/WATS rates. As a result these rates would fall in real terms by approximately the rate of inflation (p. 68). It concluded this part of the decision by warning that "further reductions to MTS/WATS rates will be required" (p. 69).

Full rate rebalancing "as exemplified by Bell's and B.C. Tel's illustrative proposals" was rejected by the CRTC for the following reasons:

- a majority of subscribers would face increased total telephone bills (85% of subscribers according to Bell Canada and 70% according to B.C. Tel); and
- without a subsidy plan, "a number of subscribers could find that . . . ordinary telephone service would be unaffordable" (pp. 66-67).

The significance attributed to these reasons was explained earlier in its rebalancing decision when the CRTC stated that "the universal accessibility of service is, and will remain, of fundamental importance both to protect subscribers and to maintain the value of the telephone network" (p. 64). The insertion of the words "and will remain" suggests that the Commission has already made up its mind as to the primary criterion by which future proposals for rate rebalancing will be judged – even before the proposed public process takes place.

The Commission noted that there were large differences in the estimates of "drop off" in the event of full rebalancing. Peat Marwick's estimate (based on an increase in local rates of 66.5% in Ontario and Quebec and 56.8% in B.C.) was a drop off of 20,000 to 25,000 subscribers in the combined territory covered by Bell and B.C. Tel. Bell's estimate (based on a price elasticity of demand of -0.032) was that 160,000 residential subscribers (400,000 individuals) would drop off in its own area. The Commission considered Bell's estimate to overstate the likely impact; Bell did not, for example, take into account the possibility of subscribers moving to two-party service rather than dropping off the network. (p. 64).

3.3 Critique of the Rate Rebalancing Decision

While the CRTC has opened the door for at least some degree of rate rebalancing following further public hearings on this politically contentious issue, its decision in part IV of Telecom 85-19 warrants comment.

First, the Commission has indicated that the most important criterion by which rebalancing (as well as entry into MTS/WATS) is to be judged is "universal accessibility of service . . . both to protect subscribers and to maintain the value of the telephone network." Yet it does not define what universal accessibility means. By implication however, the damage to the principle of universal accessibility represented by the lower estimate of drop off provided by Peat Marwick (which was one quarter of Bell's estimate) would be unacceptable. This is despite the fact that with a doubling of local rates only about 40,000 subscribers in Bell's and B.C. Tel's territories combined could no longer afford telephone service.

The impression one gains from the decision is that the CRTC, for the sake of of a tiny fraction of all subscribers, is prepared to prevent full rebalancing and to phase in some form of partial rebalancing over a number of years. This is a superb example of Rawlsian ethics:[16] the regulator is unwilling to permit changes in the price structure of an important service that could increase GNP by some $2 billion annually and produce a gain in consumer surplus of some $500 million annually because a tiny percentage of telephone subscribers will drop off the network.

One should not overstate the point however, because as Bell Canada, CAC and the CRTC point out, under full rebalancing some 85% of households would face an increase in their telephone bills. For the vast majority of households, the doubling of local rates would more than offset any savings on long distance calls because they make relatively few toll calls. The CRTC's concern over the drop offs, therefore, may simply be a way of protecting the interest of many more middle-class subscribers and justifying its decision in the name of the poor. This is analogous to rent control, two-thirds of whose beneficiaries are not poor, but whose justification is in terms of helping the poor.

Second, the CRTC has been remiss in its duty by failing to explore in detail the many alternatives to the present method that may exist for achieving "universal accessibility" other than using the large margin on monopoly toll calls to offset the common access costs that are not usage-sensitive and that the telcos presently assign to the provision of local service. The discussion of alternative ways of subsidizing those who would drop off is limited to three paragraphs sketching the proposals of three telcos (pp. 63-64). The CRTC does not even comment on B.C. Tel's estimate that a 2% surcharge on local rates or a one per cent per minute surcharge on MTS/WATS rates would generate "sufficient revenues to finance a targeted subsidy program that would provide reduced local rates for more than twice the number of potential drop offs in its territory" (p. 63). The Consumers' Association (1986, p. 26) notes that California's *Universal Telephone Service Act*, which came into effect on January 1, 1984, states explicitly that telephone service is a right. The Act provides for the creation of a fund to subsidize basic service for low income households. Eligible households (those with incomes of $11,000 or less) receive local service at a 50% discount and one free installation, with subsequent installations at one-half the normal charge. Although some 1.2 million households are eligible for the subsidy, only 450,000 have taken advantage of it. The subsidy is funded by a 4% tax on intrastate long distance calls.

The CRTC never calls into question the idea that telephone rates should be regulated to achieve particular distributional outcomes. It does not occur to the Commission to suggest that subsidies for "deserving" telephone subscribers, such as low income families might be the responsibility of other government agencies.[17] Nor does it occur to the Commission to note that if rates were rebalanced and the penetration rate of telephone service fell from its present level of 98% to 97% virtual universality would still be achieved.

Third, the CRTC acknowledges but does not question the implications of the fact that with full rebalancing "those who would pay increased bills as a result of such a program (85% of residential and 58% of business subscribers after full rebalancing according to Bell) are currently paying rates for telephone service which do not recover all of the associated costs of providing it" (p. 65). Moreover, the beneficiaries of rebalancing are currently paying prices that exceed the costs of serving them. These are important points. Full rebalancing involves taking *away* a subsidy now enjoyed by the majority of telephone users. It does not involve imposing a new tax on those who already pay the full cost of the services they buy. Is it "fair" that the present heavy users of long distance services should be heavily taxed so that local rates can be kept down?

The problem with the debate about who is subsidizing whom lies in the assumption made by the telcos that access costs (the fixed common costs of providing local loops) should be attributed entirely to local service (see Melody, 1983). This point is not addressed by the CRTC. The argument for attributing access costs to local service apears to be based on two factors: first, 19 out of 20 calls are local; second, telephone service typically began with the creation of a local network – then long distance was "grafted on" to an existing body of plant and equipment. In other words, local service is the "core" of a telco's business so it is logical it should bear the access costs.

Two comments are warranted here. Since access costs are not usage sensitive it is irrelevant what proportion of the labor and capital they represent is attributed to local or long distance calls. The idea that long distance came after local service chronologically is simply an historical fact that is not relevant to the efficiency-based principles of cost causation and cost-based pricing (see Ogle, 1979). We must recognize that assigning all, or any part, of access costs to local service rather than long distance is a purely arbitrary decision—unless it has the effect of causing a distortion in the (Pareto) optimal amount of various telecommunications services that are produced. At first glance, it appears that by assigning all or virtually all of access costs to local service to be recovered from local rates, a Pareto improvement in allocative efficiency would be possible. Why? Because the price elasticity of demand for local services is virtually zero while that for long distance calls is near or greater than unity. Therefore, a doubling or trebling of local rates will reduce the quantity of local services demanded by only a small amount, while a fall in long distance rates will substantially increase the quantity demanded and the quantity demanded may increase proportionally more than the decrease in price. This will produce a large gain in consumer surplus—one that will more than offset the loss of consumer surplus due to a big increase in local rates by a considerable margin. In other words, a subsidized rebalancing could yield a Pareto improvement.

4.0 Pro-Competition Aspects of Telecom Decision 85-19

4.1 Resale and Sharing

Where they are allowed to operate, resellers typically lease lower priced, bulk-rated services and offer smaller quantities to customers at prices below the telcos' MTS or Telepak rates for long distance voice services or below Dataroute tariffs for data services. Sharing involves joint use but not reseale of services or facilities leased from a carrier. For example, instead of individually leasing interexchange voice grade circuits, users could jointly lease Telepak services at lower rates and share the use of the services.

With few exceptions, the customers of federally regulated telcos may not resell services or share the use of telephone services with others. In 1984 the CRTC had decided in two cases to permit resale and sharing. In the *Enhanced Services* case, the Commission required all carriers in its jurisdiction to permit resale and sharing for the purpose of providing enhanced services.[18] In the second case Telesat Canada was required to permit licensed broadcasters to resell excess capacity on their satellite channels to other broadcasters for broadcast programming purposes.[19]

The CRTC undertook an examination of the resale and sharing issue in respect to three markets:

- long distance public telephone service (MTS and WATS);

- long distance services *other* than MTS or WATS (e.g. private leased lines for voice or data); and
- local services.

The Commission decided: (i) that the carriers' general regulations limiting resale and sharing of long distance services *other* than MTS and WATS should be removed and that permission should first be given to the telcos to restructure their rates for such services; (ii) that the carriers' regulations preventing resale and sharing of local services should be removed, except in the case of resale to provide basic local telephone service,[20] and (iii) that with respect to public long distance telephone services the regulations should be retained *except* in the case of *sharing* MTS because of concerns about uneconomic entry and the loss of revenue by the carriers.

Where the CRTC allowed resale or sharing, it concluded that it was neither necessary nor desirable in the public interest to regulate the activities of resellers or sharers. This provides a good example of what Janisch and Romaniuk (1985) call "regulatory forbearance."

The CRTC based its decision on what it saw as the benefits of resale and sharing:

- improved supplier responsiveness to customer needs and service innovation;
- more efficient use of the capacity of the telecommunications system; and
- increased pressures for lower rates and more flexible rate structures. (p. 83)

However, the Commission was also concerned about situations where the differences in the prices of similar services substantially exceed the differences in the costs of providing such services. In such circumstances resale and sharing could result in *increased* total costs of providing such services. Where uneconomic entry occurs the telcos are placed at a competitive disadvantage through the erosion of their revenues and through pressure to reduce rates on the high volume, competitive routes.

The Commission considered two methods of preventing uneconomic entry: rate adjustments and contribution charges. It concluded that it would be "impractical" to administer a system of contribution charges applied with regard to the specific activity involved (p. 85). By allowing only the sharing of MTS and by not permitting the resale of MTS and WATS or the sharing of WATS, the CRTC prevented substantial losses in the existing carriers' revenues. Federally regulated companies were directed to file revised tariffs in light of the decision, and invited to file for revisions of interexchange services (other than

MTS/WATS) they believed to be necessary prior to allowing resale and sharing in that market (p. 90).

4.2 Interconnection of Local Systems

Major users of telecommunications services want to be able to link multiple sites within an exchange using their own communications systems and to carry the traffic on their equipment into the local public switched network.

While the CRTC first permitted terminal attachment in 1982,[21] the General Regulations of federally regulated carriers continued to prohibit, with only a few exceptions, the interconnection of customer-owned local network facilities (intra-exchange systems) with the telcos' facilities or services. Private intraexchange systems can provide users with alternatives to the dedicated local channels provided by telcos to carry voice, data, or video as well as access to the carriers' network services. The Commission noted that in several instances the interconnection of intraexchange systems is already permitted: radio paging systems, radio common carriers and cellular telephone systems, and systems to provide enhanced services (p. 92).

The Commission concluded that in light of the limited record on the issue and the potential duplication of facilities, the removal of the present restrictions on the interconnection of intraexchange systems to provide primary exchange *voice* service would *not* be in the public interest. It did decide, however, to permit the interconnection of non-carrier provided *private* intraexchange systems and non-carrier provided public *non-voice* intraexchange systems to the facilities and services of Bell, B.C. Tel and other carriers within the CRTC's jurisdiction. This decision is designed to facilitate the development of a more responsive and innovative computer communications infrastructure. Here the Commission explicitly recognized that the local *data* communications market is now subject to the convergence of the traditional industries of data processing, cable and telecommunications.

Moreover, the Commission believed the change would have little impact on the telcos' revenues. It also decided *not* to regulate the rates for services for this type of interconnection. The CRTC also removed the restriction in Telecom Decision 82-14[22] on private user systems (e.g. PBXs) on non-continuous property on the grounds of user flexibility and choice and "greater efficiencies."

4.3 Interconnection for B.C. Rail

The railway sought an order requiring B.C. Tel to interconnect with it for the provision of private line voice and data services on comparable terms and conditions to those approved in Telecom Decision 81-24.[23] B.C. Rail stated it expected to set its rates at 85% to 90% of B.C. Tel's rates for equivalent services. The CRTC noted that "no party disputed B.C. Rail's view that benefits, such as increased consumer choice, improved service availability and quality, and increased incentives for innovation were likely benefits to arise as a result of the granting of its application" (p. 107). Only three telcos, including B.C. Tel, and two unions were opposed to the application.

The CRTC noted that the issue of possible economic harm to B.C. Tel did not arise in this proceeding and concluded there would be no adverse economic impact on the telco – including its local rates (p. 112).

The Commission approved B.C. Rail's application at the same rate of contribution as required of CNCP in 1981.[24] It also accepted the railway's undertaking to file with it, on the public record, its rates and certain financial reports.

5.0 Whither Government Policy?

The Federal Government appears to be moving in contradictory directions on the related issues of allowing competition in MTS/WATS markets and rate rebalancing. On one hand it is reaffirming the popular objective of universal, affordable telephone service; on the other it appears to be seeking a politically palatable way of steadily increasing local rates over five years in exchange for lower long distance rates. With respect to the first direction, it should be noted that before the CRTC handed down Telecom Decision 85-19, the Minister of Communications, Marcel Masse, indicated that his highest priority was universal, affordable telephone service:

> First and foremost, we must develop a policy which preserves universal access to the telecommunications system at affordable prices. Canadian telephone service to individuals and households is among the very best in the world. No policy, no matter what its industrial or economic benefits, can be considered acceptable if it lowers the current level of service, which is so essential to so many Canadian citizens. Similarly, no policy can be considered acceptable if it means that this essential service will not continue to be universally affordable.[25]

Could it be that the CRTC's Telecom Decision 85-19 was influenced by this indication of Government policy when it usually faces a vacuum? While CNCP was asking the CRTC to review and vary its decision[26] (which can be done before an appeal to the cabinet), the Minister and his provincial counterparts hammered out a set of fundamental principles to be applied to telecommunications issues. They are:

- universal access to telephone service at affordable prices;
- technological progress to benefit all Canadians;
- international competitiveness of Canadian industries;
- a uniquely Canadian approach;
- regional economic development; and
- governmental responsibility for policy development.[27]

The DOC's press release stated that "the ministers agreed to give priority to maintaining universal access to affordable telephone service for all Canadian consumers." Given the new Tory Government's manifest desire to be more sensitive to the interests of provincial governments, this endorsement of universal, affordable telephone service does not bode well for either competition in MTS/WATS or extensive rate rebalancing. Perhaps because they are so large, governments are ill-coordinated creatures as the following newpaper stories indicate.

In September 1985 the Vancouver *Sun* stated that it had obtained a Federal Cabinet document that recommended the Government support more competition in long distance telephone markets and rate rebalancing. According to the *Sun*, "the document says competition could force local rates to jump by up to 90 per cent over five years and make telephone rates unaffordable for up to 37,000 Canadians, mainly small businessmen and individual subscribers."[28] The paper continues, "the brief notes that 70 per cent of Canadians are opposed to long-distance competition with local rate increases, and urges that a $1 million public information program be launched to defuse the formation of a 'common front' opposed to such changes." The Cabinet paper argued that without competition in long distance services and rate rebalancing (cost-based pricing), the growth of the nation's telecommunications industry ($20 billion in assets; 120,000 employees) could be threatened.

Not surprisingly, the idea that the Government should sell the proposed policy aggressively met with criticism. MP Jim Fulton (NDP-Skeena) said that "the theme of the whole document is how government can manipulate the public . . . The tenor is how to prevent a common front because if one is formed they won't be able to get away with this kind of thing".[29]

According to Fulton, "in the interests of big business, the Government is prepared to sacrifice universal access to telephones. There are towns in B.C. that could end up with (only) a telephone or two because of the extremely high costs of servicing if they go to cost-based pricing".

A spokesman for the B.C. branch of the Consumers' Association of Canada, described the document as "outrageous and biased". Moreover, "it is highly offensive that millions of our own tax dollars could be used to brainwash us into accepting higher phone rates."[30]

The Press Secretary for the Minister of Communications emphasized that the document was only a working paper "which doesn't mean it's a political decision at all."[31]

In December 1985 the Canadian Press obtained through the *Access to Information Act* the results of a $113,000 survey of 2,000 people concerning telephone rates conducted in July for the Privy Council Office.[32] According to the CP story, "the survey clearly contemplates rate increases for basic service. It found a $1-a-month increase acceptable to four out of five Canadians, and about half of the 2,000 people surveyed could accept a $2-a-month increase. But "majority opposition can be expected to any increases in excess of these levels ... So $2 increases could be stretched over a longer period ... $2 a month in each of the next five years ..." The survey followed a strategy paper prepared for the cabinet in May 1985.

The search for a telecommunications policy that is more effective in dealing with both efficiency and distributional considerations continues. It is reflected in the "regulatory program reform initiatives" announced on March 6, 1986 by the newly-appointed Minister of Regulatory Affairs (Ray Hnatyshyn). The items relating to telecommunications were as follows:

(1) The Minister of Communications is to continue to develop, through intensive consultations with the provinces, a national consensus on the role of competition in the provision of telecommunications services.

(2) The Canadian Radio-Television and Telecommunications Commission and provincial telecommunications regulatory bodies are to conduct a joint study to examine the appropriate pricing structure for telecommunications services.

(3) The Minister of Communications, in preparing the proposed *Consultation Paper on Telecommunications Policy* (which began on January 13, 1984), is to ensure that it adequately addresses the following issues (in addition to the issues of

maintaining universal service at affordable prices, rate restructuring, and phasing in of further network services competition):

i) the appropriate legislative and ownership framework for Telesat Canada (50% owned by the Federal Government) as a provider of competitive telecommunication services;
ii) a plan to more carefully define the scope and manner of CRTC regulation as competition develops;
iii) measures to allow for direct participation of provincial telecommunication regulators in CRTC decisions which have significant spillover effects on provincially regulated telecommunication carriers.[33]

More study and more consultation can only mean more delay.

6.0 Conclusions

In Telecom Decision 85-19 the CRTC clearly illustrated several themes endemic to direct regulation and its reform in Canada. First, the obsession with protecting the economic positions of the established stakeholders in the current system of regulation overrides the opportunity for achieving large gains in economic efficiency.

Second, the liberalization of direct or economic regulation occurs in Canada largely as a result of decentralized incremental decisions by regulatory agencies in response to specific applications from regulated firms or potential entrants. This is in contrast to regulatory reforms which are either centrally determined or ordered by the courts, as in the AT & T case in the United States.[34]

Third, regulators show a marked willingness to sacrifice substantial gains in efficiency in order to prevent changes in the distribution of income. This practice is allegedly defended in the name of the poor and/or otherwise disadvantaged—even when the potential "losers" are currently benefiting from a policy that subsidizes their consumption of a particular service.

Fourth, the decision illustrates the use of economic regulation (i.e. controls over price, entry and exit) to achieve a variety of "social" objectives largely associated with income redistribution on the one hand, and on the other with maintaining a *modus vivendi* in federal-provincial relations even in areas in which the Federal Government has exclusive jurisdiction.

Fifth, Telecom Decision 85-19 illustrates our national schizophrenia about the virtues of competition. Some aspects of the five-part decision clearly favor competition (resale and sharing by customers, interconnection of private local networks, and interconnection resulting in more competition in the supply of private line voice and data services). Others, notably the rejection of CNCP's application, clearly favor the regulated monopoly *status quo* largely by reason of the impact of competition on the distribution of income.

It appears that the regulator was overwhelmed by the complexities implicit in allowing competition in the telcos' fastest growing and most lucrative market. As the Commission noted in its decision, competition and rate rebalancing will have an impact, among other things, on the revenues of telcos outside its jurisdiction, on the future prices of both local and long distance services, on the costs of telecommunications services to Canadian business and thus on their international competitiveness. The Commission will be faced with the need to know the costs of providing various telco services, with the task of allocating the large lump of costs associated with access to the network, which are not usage-sensitive, and with the possibility that much higher rates for local exchange service will lead to the need to introduce targeted subsidies and/or local measured service.

Of course, both competition and rate rebalancing have important implications for that cross that all Canadians must bear: federal-provincial relations (see Janisch, 1986). Faced with this enormous agenda, heavily weighted with value judgments, and with the need to make non-incremental changes, the CRTC opted to study the issues in more detail by promising to consult with federal and provincial representatives and hold a "public process"[35] to assist it in developing its rate rebalancing policy. Persons interested in either economic efficiency or widely-held canons of fairness in income distribution can only look forward to this process with trepidation.

Notes

1. CRTC, *Interexchange Competition and Related Issues*, Telecom Decision 85-19, August 29, 1985 (Ottawa: CRTC, mimeo). This proceeding began with CNCP's application on October 25, 1983.

2. Columnist Jeffrey Simpson, for example, argues that the situation cannot last indefinitely, e.g., "economic forces and business interests will not stop putting pressure on the CRTC for lower long distance rates." In his view, "the clash, left unresolved (by the CNCP decision) still puts market forces against the Government's political instincts. Granny with her (low flat-rate) monthly service bill can hope for the best, but she should prepare for the worst." (*Globe and Mail*, August 30, 1985, p. A6.)

3. Perhaps their spirit has been captured by the previous chairman of the CRTC, John Meisel, when he rejected the priority of economic efficiency in favour of "the achievement of political and social ends" which, in his view, have been "responsible in a very large measure for our survival as a country." Moreover, decisions based on these objectives have "enabled us to fashion a society that rests on a shared sense of decency and moral principle . . . (which) has attempted to engrain justice and humanity into its social organization" (CRTC, *Annual Report, 1981-82*, p. ix).

4. CRTC, Press Release, August 29, 1985, p. 1.

5. "Wrong number", Vancouver *Sun*, August 31, 1985, p. A4.

6. "Don't close doors on phone competition", *Financial Post*, September 7, 1985, p. 9.

7. For convenience, these have been taken from the summary prepared by CNCP (1985). For more detail, see CNCP, "Argument of Applicant," December 7, 1984, and "Reply Argument of Applicant," February 11, 1985.

8. For convenience, CAC's perspective has been taken from its position paper published in February 1986. See Consumers' Association of Canada (1986).

9. See the papers in Schultz and Barnes (1984).

10. Lawrence Surtees, "CNCP,s telephone bid rejected", *Globe and Mail,* August 30, 1985, pp. A1, A2. Bell Canada and B.C. Tel account for 80% of the long distance market in Canada – worth $5 billion in 1984 and estimated to be worth about $9 billion in 1985.

11. Hereafter, page numbers alone after a sentence refer to the CRTC's Telecom Decision 85-19, see note 1.

12. *Inquiry into Telecommunications Carriers' Costing and Accounting Procedures: Phase III – Costing of Existing Services,* CRTC Telecom Decision 85-10, June 25, 1985.

13. Columnist Jeffrey Simpson has argued that, despite its support in principle for competition in long-distance voice telecommunications, the CRTC is "unlikely soon to see another (application) suggesting lower long-distance charges through competition" (*Globe and Mail,* August 30, 1985, p. A6).

14. The list was as follows:
    - Universality of service;
    - Consumer choice and responsiveness to consumer need;
    - Quality of service;
    - The Justness and reasonableness of subscriber rates (including subscribers of connecting companies);
    - The Requirement that rates and conditions of service not confer an undue preference or disadvantage;
    - Innovation in the telecommunications industry, and in Canadian business generally;
    - Efficiency of telecommunications systems;
    - Optimal allocation of resources taking account of geographic differences;
    - The Structure of rates, including route-averaged pricing, rate group structures, and rural service rates;
    - Industry structure (p. 11).

15. See *Financial Post 500,* Summer 1986, p. 68.

16. The heart of John Rawls (1971) theory of "distributive justice" is the principle that all social primary goods must be distributed equally throughout a society unless an unequal distribution of any of these goods is to the advantage of the least favored persons in society. Put another way, Rawls

argues that no policy change should be undertaken, regardless of the size of the total net benefit involved, unless the change improves the welfare of the least advantaged persons in society. For helpful critiques of Rawls, see Schaefer (1979) and Wolff (1977).

17. A *Globe and Mail* editorial (August 31, 1985, p. A6) described the CRTC's approach as one which "seems to hold the future of Canadian telecommunications hostage to a social concern which can be addressed through other, unrelated means," for example, by an increase in social assistance payments.

18. *Enhanced Services*, CRTC Telecom Decision 84-18, July 12, 1984.

19. *Telesat Canada* . . ., CRTC Telecom Decision 84-9, February 20, 1984.

20. In Japan, it appears that the Ministry of Posts and Telecommunications is allowing entry into the provision of all local exchange services. Recently, Tokyo Electric has announced that it will soon be competing with Nippon Telegraph and Telephone in the largest urban area in Japan.

21. See *Attachment of Subscriber-Provided Terminal Equipment*, CRTC Telecom Decision 82-14, November 23, 1982.

22. *Ibid.*

23. *CNCP Telecommunications: Interconnection with the British Columbia Telephone Company*, CRTC Telecom Decision 81-24, November 24, 1981.

24. The CRTC held that the benefits of competition offered by B.C. Rail were the same as those identified in the original interconnection decision *CNCP Telecommunications: Interconnection with Bell Canada*, CRTC Telecom Decision 79-11, May 17, 1979.

25. Marcel Masse, Address to Electrical and Electronic Manufacturers Association Meeting, Montebello, Quebec, June 20, 1985, p. 4.

26. On December 19, 1985 CNCP filed an application with CRTC requesting that the Commission review and vary Telecom Decision 85-19. On March 7, 1986, the CRTC issued Telecom Public Notice 1986-26 seeking written comments on CNCP's application by May 19, 1986. The Commission said it "will not consider making any determination to permit the introduction of competition in the long distance public telephone service market without first conducting a further public process including evidence, interrogatories and an oral hearing.

27. Department of Communications, Press Release, February 28, 1986.

28. Doug Ward, "Brief urges higher phone rates", Vancouver *Sun*, September 23, 1985, p. A2. These figures appear to have been based on the estimate in the report by Peat Marwick, filed with the CRTC in the Interexchange proceeding.

29. Ward, *Ibid.*

30. "Phone rates report biased, CAC charges", Vancouver *Sun*, September 24, 1985, p. A9.

31. Quoted in Ward, note 28.

32. See "Ottawa will let telephone bills rise", *Globe and Mail*, December 10, 1985, pp. A1, A2.

33. President of the Queen's Privy Council and Government House Leader, *Press Release*, March 6, 1986. These initiatives stemmed from the Neilson Task Force on Program Review whose study teams produced 21 volumes of reports which were released on March 11, 1986. See *Globe and Mail*, March 12, 1986, pp. A1, A4. With respect to regulatory programs the two key volumes are *Management of Government: Regulatory Programs* (dated May 1985) and *Management of Government: Regulatory Agencies* (dated August 1985).

34. See *U.S.* v. *American Telephone and Telegraph Company*, 524 Federal Supplement 1336 (1981). More generally, see Evans (1983).

35. At the time the decision was announced the chairman of the CRTC said this process could begin in December 1985 as this was "an urgent matter" (*Globe and Mail*, August 30, 1985, p. 2). Seven months later the CRTC had not given notice when it would begin.

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